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●

THE MUNICIPAL INDEX and ATLAS, used in connection with the current advertisements in THE AMERICAN CITY, places officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. This 835-page annual is published by The American City Magazine Corporation, 470 Fourth Ave., New York 16, N. Y.

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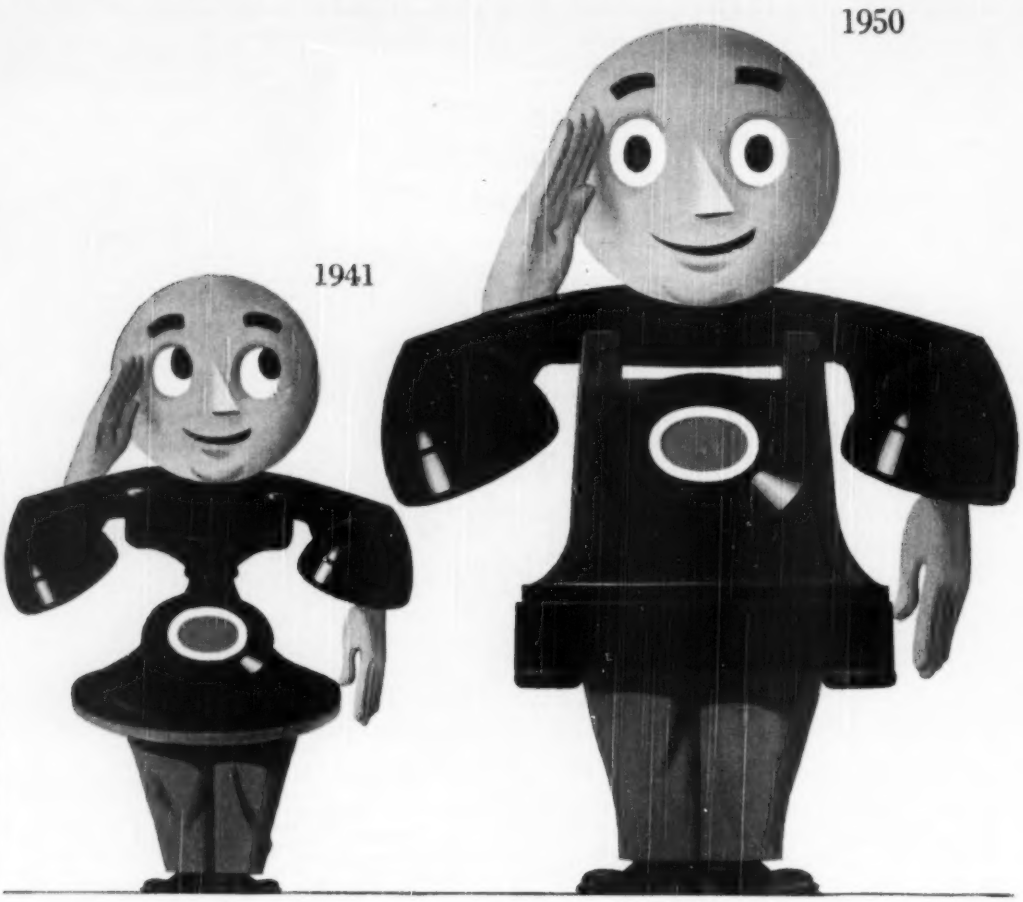

Good thing he's grown

He seemed like a big fellow in the rush days of 1941. But it's a good thing he's bigger today. For the telephone system of nine years ago couldn't possibly do today's job.

Since 1941, the Bell System has increased the number of telephones by more than 16,000,000. There are nearly twice as many now as nine years ago.

Millions of miles of Long Distance circuits have been added. Billions of dollars have been spent for new equipment of all kinds. The number of Bell Telephone employees has increased to more than 600,000.

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For now, more than ever, the Nation depends on telephone service to get things done and speed the job of defense.

BELL TELEPHONE SYSTEM

Our Municipal Notebook

How City Officials Can Help Local Red Feather Campaigns

WHEN 1,250 American cities bedeck themselves with Red Feathers in October, and thousands of earnest volunteers get out to raise an aggregate of more than $185,000,000 for the support of 15,000 community health, welfare and recreation services . . . the help and encouragement of municipal officials is vitally needed.

There are definite ways in which most effective support may be given:

I

The Mayor or City Manager may follow President Truman's designation of October as "National Red Feather Month" by proclaiming a local "Red Feather Week" or "Red Feather Day." This should be timed to coincide with the local Red Feather campaign observance, coming early in October as in some cities and later in others—even so late as November in some of the largest cities. This proclamation might be issued at the City Hall or in some important civic center, and be the occasion for a rally or parade or other attractive ceremony.

II

The solicitation of city employees is a big item in every Red Feather campaign. The sponsorship and cooperation of responsible city officials is urgently needed to help facilitate this solicitation. The use of a payroll deduction system to make possible generous support of the campaign on the part of city employees has become quite general, and is the best single method of cooperation that can be suggested. Each department head may volunteer his personal endorsement, and leading officials may make appropriate speeches and releases to newspapers.

III

Municipal officials may help the Red Feather campaign in many effective publicity ways. For example, official approval may be needed for Red Feather posters to go up on city-owned poles, for Red Feathers to be stenciled on sidewalks, for Red Feather banners to be stretched across thoroughfares, for posters or car cards to be placed in city-owned transportation lines. City-owned buses are made available in some cities to transport "Red Feather Come-See Tour" groups from factories, schools, clubs, etc. Police Departments may supply guards for the cash at Red Feather campaign headquarters. Police and Fire Departments often participate effectively in Red Feather parades and rallies.

IV

The Mayor or City Manager, and leading officials such as the Public Welfare Director, Public Health Director, and others, may help emphasize in speeches and personal conversations with contributors, the importance of the voluntary health, welfare and recreation services in a community which work as year-round partners of the corresponding public services; together serving the public and making the community a fine place in which to live.

Publicity material is available from your local Community Chest or from Community Chests and Councils of America, Inc., 155 East 44th Street, New York 17, N. Y.

Engineer's Responsibility in Subdivision Planning

DISCUSSING "The Engineer's Job in Subdividing Acreage Property Into Home Sites," at the 1950 Purdue Road School, George E. Lommel, Professor of Topographical Engineering at Purdue University, pointed out that the engineer employed by the owner of a tract of land assumes a three-fold responsibility:

1. *A responsibility to the owner, his client.* When he, the engineer, is approached by the owner, the question should be raised whether or not there is a need for the type of development contemplated; in other words—whether there will be a sufficient number of prospects to warrant the expense of subdivision. It may not be the engineer's responsibility to answer the question, but he should at least remind the landowner that profits result from sales and that unless there is a reasonable prospect of sales, it might be unwise to undertake the subdivision.

2. *A responsibility to his community.* The engineer must realize that the lines he establishes and records now—the streets, lot widths, and depths which he designs and surveys—fix indelibly the present and future pattern of community growth on that area. His plan must fit the master plan as adopted by the plan commission—must be approved by that agency in order properly to implement their master plan. He must also acquaint himself with the rules of the plan commission relative to the manner in which his work is to be performed.

3. *A responsibility to the future owner*

The American City Quiz

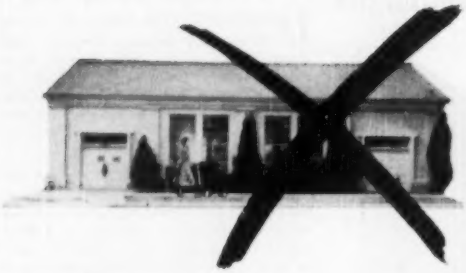
Match Wits with the Experts

QUESTIONS

1. ***Can water and sewer systems in all states issue bonds for new construction and guarantee payment out of revenue from water and sewer charges only?***
2. ***Can municipalities purchase and install garbage grinders in the home of each resident as a health and sanitation measure?***
3. ***What is the average monthly bill for residence refuse collection?***
4. ***How can one increase the capacity of catchbasins so that they will draw storm water from the streets faster?***
5. ***About how much of the highway traffic wishes to by-pass the city that the highway leads to?***
6. ***What amount of power can one obtain from digester gas generated in a sewage-treatment plant?***
7. ***What sort of water-main construction should be undertaken when placing a main across an express highway?***
8. ***What effect has proper street lighting on night-driving accidents?***
9. ***What is the cost of fluoridation of water supplies when this practice is adopted as a dental health measure?***
10. ***What sort of water-supply dams are safest from damage in case of air attack?***

(Answers on page 9)

COSTS GO DOWN...



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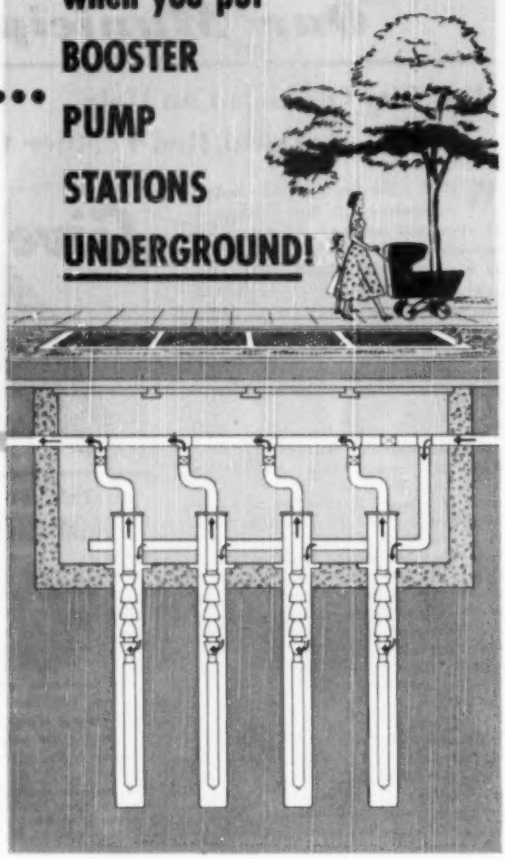

BJ SUBMERSIBLE PUMPS

SAVE TAX PAYERS DOLLARS

Why tie up vital operating dollars in real estate, pump buildings, pump house maintenance and personnel when you can secure equal or better pumping performance *at much less cost* by putting your booster pump stations underground? Here's how Byron Jackson submersible pumps can save money:

YOU SAVE REAL ESTATE COSTS . . . there's no need to acquire special land. *Underground* booster stations can be placed beneath any city street or between street and sidewalk. They are out of sight and out of hearing.

YOU SAVE ON CONSTRUCTION . . . an *underground* pump vault can be completed at a fraction of the cost of a surface-type pump house.

YOU SAVE ON OPERATING COSTS . . . BJ submersibles do not require an attendant for oiling, packing inspection, or other daily care. There's no building maintenance either!

YOU'RE IN TUNE WITH THE TIMES . . . *underground* pump stations fit the trend toward concealed equipment and offer greater protection against fire, flood, sabotage and other disaster conditions.

The above sketch shows how four BJ 250 hp submersible pumps can operate in a 6' x 12' x 7' economically built underground vault between sidewalk and street or beneath the street surface. These pumps can be close-connected to the street water main with starter panel located in the vault or unobtrusively mounted on a nearby power pole.

The BJ submersible pump with special submersible motor answers many municipal water pumping problems. Find out how these pumps can cut your pumping costs. Send the coupon for general installation data or write for specific engineering assistance.

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City_____ State_____

of each lot. This may be the most important of the three. The purchase of a site and the building of a home are for many American families their most important economic effort. Safeguarding that investment; preventing deterioration in values caused by poor design; holding construction and maintenance costs of streets, sidewalks, sewers and other public services to a minimum by good design, become most important responsibilities of a conscientious engineer.

Los Angeles ASPO Conference Highlights

By NORMAN WILLIAMS, JR.

MORE than 500 delegates attended the annual conference of the American Society of Planning Officials held in the Hotel Biltmore, Los Angeles, on August 13th to 16th. Since about 50 speeches were given, this report can review only some of the highlights of the stimulating series of meetings.*

First for the principal addresses. In welcoming the delegates, Mayor Bowron of Los Angeles reviewed the flight to the suburbs and its dangerous implications for the future of central city areas, and declared his own faith that it was up to the planners to make the older city areas attractive enough to retain residents. In the keynote address, Richard L. Neuberger, Chairman of the Municipal Affairs Committee of the Oregon State Senate, sounded a warning against complacent belief that the struggle for conservation of our natural resources had been won—pointing out that the annual cut in timber is still twice the rate of growth, and that the last stands of virgin timber are being reached. Mr. Neuberger also made a vigorous attack upon the antiquated and un-democratic mis-apportionment of seats in state legislatures, to ensure continued rural dominance there at the expense of municipal interests. Colonel Alexander Heron, Vice-President of Crown-Zellerbach Corporation, of San Francisco, made a plea for giving some preference to industry in allocating urban land, on the familiar (and logical) ground that after all in most cities most people have to work. And in the Presidential Address, Rafael Pico—Chairman of the Puerto Rico Planning Board, and the newly-re-elected President of ASPO—made an eloquent statement of the role of planning in the survival of democratic values.

In the session devoted to Latin American Planning, Dr. Miguel Figueroa Roman, of the Universidad Nacional of Tucuman, Argentina, proposed that planning be renamed "planology," and stimulated quite a discussion as to whether planning was a branch of sociology, or philosophy, or neither. In the same session a paper by Dr. Francisco A. Lopez F., Assistant Director of the Bank for Housing and Redevelopment of the Republic of Panama, described the work of that bank in developing a complete satellite city, including various residential building types plus community facilities and shops, on a tract of 173 acres located three miles outside Panama City.

One of the outstanding speeches in the sessions on "Action for Cities" was a word of caution on expressways, by Charles M. Nelson, Editor of *Better Roads Magazine*. While recognizing their advantages, Mr. Nelson warned that expressways may help to drain the cities and create further serious problems.

In the session entitled "Is It Legal?", Mr. Frank F. Stearns, of the Miami City Planning Board, described the efforts in that city, particularly by incorporating existing subdivision regulations into the zoning ordinance, to prevent the use of modern architecture in residential areas there. Mr. Proctor Noyes of the Cleveland Regional Planning Commission discussed recent trends towards decreasing size of residential units, the relationship between this trend and public health, and recent efforts in the suburbs to prevent such construction. Mr. Herman Ruth, of the HHFA staff, described various new types of zoning districts, and emphasized the importance of preambles for zoning ordinances. In addition, I discussed the confusion and intellectual vacuum of zoning decisions, together with an outline of the basic legal problems involved.

Redevelopment Discussed

The session on urban redevelopment was perhaps the most important of the conference. Mr. Carl Feiss, Chief of the Community Planning and Development Branch of the HHFA Division of Slum Clearance and Urban Redevelopment, discussed that agency's policy in applying the statutory requirement that applicants for redevelopment funds should have a "general plan," locally developed. Of 205 localities which have applied so far, only 128 have planning agencies, and of these 56 have full-time staffs. Ferd Kramer, of the Chicago Metropolitan Housing and Planning Council, discussed the various practical obstacles which tend to discourage urban-redevelopment projects, and emphasized the absolute necessity of public housing to provide for relocation of tenants displaced by redevelopment programs. And Mrs. Catherine Bauer Wurster gave a brilliant analysis of public housing and redevelopment.

Among the other outstanding speeches were a discussion of "Political Realism in Planning," by Chairman Jerry Finkelstein of the New York City Planning Commission (and read in his absence by Commissioner Lawrence M. Orton); a detailed discussion of a technique of population and density forecasting used in Boston, by Peter H. Nash, of the Boston City Planning Board; and discussions by several planners from the San Francisco Bay Area of the role of research, design, and regional organizations in planning.

In addition to the regular sessions, an expanded series of three Zoning Round Tables were conducted by Mr. Hugh R. Pomeroy, Director of Planning in Westchester County, New York, with the assistance of Mr. Roger Arnebergh, Assistant City Attorney of Los Angeles. As usual, these sessions proved to be among the liveliest and best-attended of the whole conference.

Another high point was the Post-Conference Tour of Los Angeles planning developments, which was taken by five full bus-loads of people.

* The entire proceedings of the conference will be published under the title *Planning, 1950*. It will be sent to all ASPO members, and may be purchased by others from the ASPO offices, 1313 E. 60th St., Chicago 37, Ill.

Norfolk Issues Booklet On Employee Retirement

"Your Security: Present and Future as a City of Norfolk Employee" is the title of a recent booklet released by the Board of Trustees of the Employees' Retirement System of the City of Norfolk, Va., which explains in detail just how Norfolk's actuarially sound retirement system operates for the benefit of city employees.

For many years public reporting has been directed to the single objective of keeping the citizen informed about his government. Many of our more efficient public administrators have lost sight of the need for reporting to the human element which is responsible for the city's successful and efficient operation. For some years now, business enterprises have devoted more time to reporting to employees, and Norfolk city officials are of the impression that similar recognition of the human element is becoming increasingly important. This led to the booklet's publication at this time. The interest taken by municipal employees in the contents has been extremely gratifying.

A. W. SYKES
Secretary, Employee's Retirement System of the City of Norfolk, Va.

BE READY...

...for the Fall leaf problem

AVOID CLOGGED SEWERS AND SLIPPERY PAVEMENT WITH Good Roads MACHINERY LEAF COLLECTOR

If you are ready with a Good Roads Leaf Collector when the leaves begin to fall, you can eliminate the dangerous leaf nuisance efficiently, economically, and quickly.

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This feature is important in cities where there is too great a distance to travel to the dumping site.

FEATURES

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CONTACT YOUR GOOD ROADS DEALER or the factory for further detailed information or a demonstration.

GOOD ROADS MACHINERY CORP. **MINERVA, OHIO**

Fire-Prevention Week Poster

FIRE is currently killing 11,000 Americans and causing about $2,000,000 worth of buildings and materials to "go up in smoke" every day of the year. President Truman and the Governor-General of Canada are proclaiming the week of October 8 to 14 as Fire Prevention Week.

To enlist the support of all citizens in the common battle against needless fire, the National Fire Protection Association, a non-profit fire-control group, has prepared an attractive array of campaign materials such as the 1950 Fire Prevention Week poster illustrated above. Anyone interested in seeing what is available for the campaign this year may receive a free, illustrated order blank describing the available material, by writing to the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

"Operation Telephone" Proves Successful

A "BLITZ" maneuver known as "Operation Telephone" proved highly successful when used by the Oklahoma City Chamber of Commerce to get support for a $36,000,000 bond issue for general municipal improvements, reports the *Chamber of Commerce News Letter* for July 1950, published in Washington, D. C.

In an effort to catch up with the rapidly expanding needs of a growing city, residents approved the bond issue by a 4-to-1 margin. This is in addition to other bond issues voted since the war: $15,000,000 for city improvements and $7,000,000 for public-school buildings.

The Oklahoma City Chamber of Commerce spearheaded the campaign for the bond issue, and had 100 new telephones installed in the Chamber offices for an all-out effort on election day. More than 125 civic-minded women were recruited to keep these and the regular telephones in the office busy from dawn to dusk calling every number in the city's telephone directory to remind the citizens to get out to vote for the bonds.

The operation was so successful that the same type of set-up was used a few days later to obtain the names of people who had been missed in the federal census. Thousands of uncounted citizens reportedly were located in this manner.

Publications on Governments

A LEAFLET listing *Census Bureau Publications on Governments* has been issued by the Bureau of the Census and is available from that agency upon request. This bulletin describes briefly each of the 17 reports on governmental finances and employment which the Census Bureau expects to issue in the fiscal year beginning July 1, 1950, and lists other recent publications of the Bureau regarding state and local governments.

Our Evolving Cities

A CITY which has no objective beyond increasing by indiscriminate sprawl is not much more than a jellyfish. The planning function properly placed in the anatomy of the local body politic becomes the brain which gives the city the will and purpose to evolve from a lower form of life and gives it the opportunity to stand up as a vertebrate with both backbone and intelligence to carry on the worthwhile objectives for which we are all so eagerly striving.

From address by Carl Feiss at National Planning Conference in Los Angeles, August 15.

The American City Quiz

ANSWERS TO QUESTIONS ON PAGE 5

1. No, revenue-bond financing is not allowed for water and sewer construction in 13 states, according to the Portland Cement Association. Furthermore, 14 states do not have enabling legislation allowing water districts, and 11 states do not have legislation allowing sewer districts.

2. Thus far, only Indiana has legislation allowing these grinders to be installed by the municipalities. The Indiana legislation allows them to be paid for on a revenue basis. Jasper, Ind., is the first municipality to take advantage of this.

3. The average monthly bill, according to the International City Managers' Association, was 81c in 101 cities. This is 20c greater than it was in 1945.

4. Some experimental work has been done at the University of Minnesota, using catchbasins with the bars running diagonally to help run the water to the curb opening. Cincinnati has also found that deflectors are helpful. These are built into the concrete around the catchbasin grating, and consist of 1½-inch steps laid at an angle so that the water is directed to the grating.

5. According to Joseph Barnett, Chief of the Urban Roads Division, Bureau of Public Roads, less than 10% of the traffic approaching cities larger than 300,000 is destined for a point beyond; 20% of traffic approaching cities from 10,000 to 300,000 wishes to go on; 50% of traffic approaching cities under 2,500 wishes to pass by.

6. According to Frank Flood, Metcalf and Eddy, Boston consulting engineers, the digester gas averages between 550 to 600 Btu's per cubic foot, and will generate 10 to 40 hp per mg of sewage treated, or one to four hp per 100 people per day based on a sewage contribution of 100 gallons per person per day.

7. In New Jersey, if the utility crosses the freeway, the main will, in general, cross at a grade separation. If the crossing is necessary at an intermediate point, a manhole access point should be located at each side. Valves should be placed outside the right-of-way, and the pipe should be made of long-lasting material. A large pipe preferably should be put in a gallery.

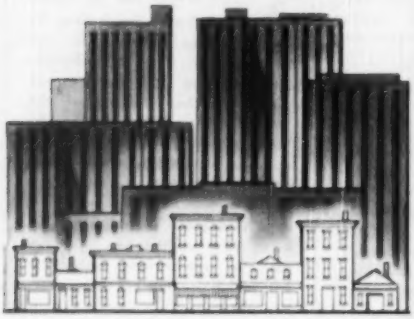
8. Edmond C. Powers, of the Cleveland, Ohio, Street and Traffic Lighting Bureau, records that in his city adequate street lights have reduced fatalities by 82%.

9. In Milwaukee, Dr. E. R. Krumbiegel, Health Commissioner, placed the cost of fluoridation at 13c per family per year.

10. Rock-filled dams appear to be the toughest; earth dams are somewhat more vulnerable, and masonry dams the most vulnerable. Masonry dams, when broken, do further damage by releasing a flood crest that washes silt downstream and often clogs sewer outlets and other areas. These were the findings of Joe Lewin, of the New York Board of Water Supply, based on his study of European dams under attack in the last war.

Send in your suggested questions with the answers on municipal topics for use in this feature. THE AMERICAN CITY will make a small payment for each question accepted.

TAKING CARE OF GROWING JACKSON



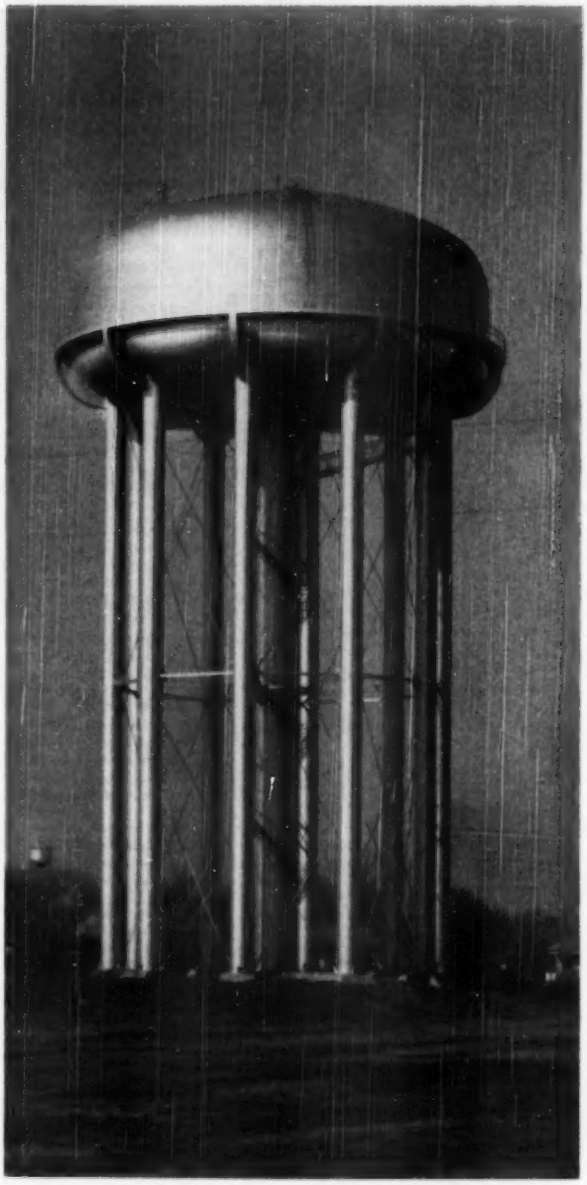
Growing cities often present innumerable headaches to their administrators . . . and Jackson, Mississippi was no exception. One of the biggest problems that faced this southern capital city was an inadequate water supply, with reduced pressures during peak load periods. Something had to be done that would not only alleviate the present situation, but would take care of future growth.

As it had done twice before, Jackson called upon Horton elevated tanks to help provide the solution. In order to fulfill the requirements, a 1,000,000 gallon tank was installed. This doubled the existing elevated storage capacity, and now provides Jackson with an adequate supply of water under gravity pressure.

The radial-cone bottom design of the Jackson installation is particularly adapted to large capacity tanks in that it does not have an excessive range in head. The distance between the high and low water levels is no greater than 250,000 gallon units. This reduces the average head and thus lowers the pumping costs. The welded steel construction insures durability, simple maintenance and clean appearance. Rust and corrosion have no place to hide.

Horton radial-cone tanks are available in capacities from 500,000 to 3,000,000 gallons. Horton ellipsoidal-bottom tanks are built in standard sizes from 15,000 to 500,000. If you have a water problem or foresee one in the future, write the nearest office listed below for an estimate on your elevated storage requirements.

Right: The 1,000,000- gallon Horton radial-cone bottom elevated tank recently installed in Jackson, Mississippi. It is 78 ft. in diam., 137 ft. to the high water line and has a 30-ft. range in head.



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Chicago 4	2127 McCormick Bldg.	Los Angeles 17	1503 General Petroleum Bldg.	Seattle 1	1301 Henry Bldg.
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Water Supply and Treatment

Chicago Sanitary District Sweat-Proofs Water and Sewer Pipes

SEVERAL miles of water and sewage pipes laid in basements, in operating and pipe galleries, and in service tunnels of the sewage-treatment works of the Sanitary District of Chicago have recently been insulated with a bituminous-cork paint to prevent sweating. Sweating tends to destroy most protective coatings, and also often causes annoyance by dripping water on equipment and floors below. The pipelines carry sewage, treatment-plant effluent and intermediates, sewage sludge, and polluted and clean water. Sizes range from 1½ inches to 36 inches and are of both cast iron and steel.

The bitumastic material which has been selected and applied by The Chicago Decorating Company is manufactured by The Insul-Mastic Corporation of America, whose headquarters are in Pittsburgh, Pa., and is known commercially as Insul-Mastic Type D. This product is based largely upon Gilsonite, but contains other asphalts and thinners for cold application.

A large amount of granulated cork is incorporated in the mixture. This cork lends insulating value and prevents the condensation of moisture from the atmosphere when moist air comes in contact with the cold pipe.

The coating was applied by spray gun to a dried thickness of ⅛ inch. Over the insulating coat was sprayed two coats of aluminum having a phenolic type of vehicle, to seal and protect the bitumen and to brighten up the dark corners where the insulating coat was most often considered necessary.

Insul-Mastic Type D has been found to have a K factor approximating 0.36 BTU's per hour per degree F. difference in temperature between the atmosphere and the liquid in the pipe, per square foot, per inch of thickness. Undoubtedly this factor is very little affected over the life of the coating.

The material was thought to increase the life of the protective coatings, not only by decreasing the amount of sweating which weakens many paints, but also by increasing the imperviousness to the penetration of moisture. It will discourage rusting beneath the coating, a common cause of paint failure.

Quarterly Meter Readings Save $50,000

THE cost of operating the Milwaukee water department was cut $50,000 last year by reading meters every three months instead of monthly, according to Edward F. Tanghe, water-works superintendent. The quarterly meter-reading schedule was adopted a year ago on the recommendation of George C. Saffran, Budget Supervisor, and Robert Garnier, Classification Examiner.

The savings have resulted from a reduction of the meter-reading force from 49 to 33 men. The displaced meter readers have not been discharged. Two are working at other water-department jobs, and the rest have been farmed out to other city departments needing added personnel.

The meter-reading force could be cut to 24 men, Mr. Tanghe feels, if plumbing in the older sections of the city were better. Some plumbing develops leaks and produces large bills if the leak is not detected promptly. Monthly reading of meters aids in this detection.

Billing also has been made less expensive by mailing the bills rather than delivering them. Mailing means that the cost is cut about one-fourth over the budgeted figure needed when delivering them by readers. Bills are rendered by postcard.

Fluorides Save 6½ Teeth per 100

TANGIBLE evidence that artificial fluoridation will lower the tooth-decay incidence in children has emanated from the Newburgh-Kingston study conducted by the New York Department of Health. Results presented by Dr. David B. Ast, Dr. Sidney B. Finn and Miss Isabel McCaffrey before the Dental Health Section of the American Public Health Association in New York last fall showed a consistent downward trend in Newburgh from 21.0 to 14.8 per 100 permanent teeth. This indicated an average saving of 6.5 permanent teeth per 100 in Newburgh over those in Kingston, where the water was not treated with fluorides. This represents a saving of 30%.

Among the first molars, which account for the major part of the dental caries problem in children, after three years of fluoride experience, Newburgh's rate was 48.0 DMF per 100 first molars, while Kingston's was 58.7. This represents a saving of 18% in first molars. Greatest benefits so far are noted in the younger-age groups.

These data are preliminary, however, and the Department of Health plans to continue its studies to 1956.

Ohrt to Help Prepare Hawaii State Constitution

WHEN the Territory of Hawaii becomes the 49th state, the skilled assistance of Honolulu's Manager and Chief Engineer of the Board of Water Supply will have played an important role. Chief Engineer Frederick Ohrt was elected a delegate-at-large by the people of Hawaii to take part in drawing up a constitution for the new state, to be submitted to the Congress of the United States for ratification. The Constitutional Convention consists of 63 members, many of whom represent individual precinct districts. Mr. Ohrt's name was selected, however, as a candidate at large from the important fifth legislative district of the island of Oahu.

Frederick Ohrt

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Street Cleaning and Refuse Disposal

Cities Improve Refuse Disposal Methods

BOTH incineration and the sanitary-landfill method of city refuse disposal are increasing in popularity, the American Public Works Association has learned in a recent research report. Still popular, but on the decline, is the old-fashioned method of getting rid of garbage by feeding it to the hogs. The Association's study of refuse-collection and disposal practices covered 214 cities of more than 5,000 population.

Thirty-six percent of the cities queried in the survey reported that they used the sanitary-landfill method of disposal and 27% reported disposal through incineration. Hog feeding as a method of garbage disposal is used by 31% of the reporting cities. Cities incinerating their refuse are predominantly over 100,000 population.

The use of home grinders is increasing, the survey showed, although only one city—Jasper, Ind.—currently has plans to install the grinders in all private homes and business places. Nineteen cities reported banning use of the grinders, mainly because of the inadequacy of the sewage-treatment plants.

Most cities collect garbage in their residential areas at least twice a week, the survey reveals.

With the exception of municipalities of more than 500,000 population, twice a week was found to be the most popular garbage-collection period in the cities surveyed. Of the 181 cities reporting on frequency of refuse collection, 56% collected garbage from residential areas twice a week and 31% provided pick-up service once a week.

Two cities—New Orleans, La., and Ely, Minn.—noted that refuse pick-up was made daily in the residential areas. Among the major cities—those over 500,000—five cities collect refuse twice a week, five once a week and two made garbage pick-ups three times weekly.

Financing methods of city-wide refuse collection theoretically can be classified into either police or proprietary categories, the Association pointed out. If the municipality pays for the service out of the general fund and operates the collection and disposal work as a health and sanitary measure for the protection of the people in the community, then it is a police function. It is a proprietary function if the city establishes a service charge and expects to make this charge pay for the cost of the service.

Forty-two of the cities that were surveyed reported charging a collection fee for garbage pick-up service. An earlier survey cited by the Association showed that less than 150 cities over 10,000 population now charge disposal fees.

The Association made no recommendations on whether collections should be made by private contractor or by city crews. "Private crews can do an efficient job or a sloppy one just as crews operating directly under municipal management," the Association stated. "This is pointed up by the fact that during the past year three of the cities surveyed—Boston, Sioux City, Iowa, and Hamburg, N. Y.—changed from public to private collection and three others—Poughkeepsie, N. Y., Canonsburg, N. Y., and Crowley, La.,—changed from private to city operation.

The study was directed by Ralph Taylor, Superintendent of Waste Collection and Disposal. It is available through the American Public Works Association office in Chicago at $5.

Toledo Gets Garbage Processing Plant

TOLEDO'S garbage and sewage sludge will be processed together to form a fertilizer under an experimental arrangement with Toledo-Frazier Products, Inc., of that city, according to City Manager Arnold V. Finch.

Under the terms of the contract, the city agrees to furnish annually 6,000 tons of substantially clean garbage in approximately equal weekly quantities and to furnish annually 600 tons of sewage sludge of approximately 60% moisture content. The company, in turn, agrees to erect a building on a site provided by the city to process the two together. If the operation of the processing plant proves successful, the city contemplates that further sites will be selected and additional plants will be erected.

Wauwatosa, Wis., Examines the Evidence

PHOTO COURTESY MILWAUKEE JOURNAL

City Engineer Henry Wildschut, left, shows Mayor William Knuese the test-tube evidence of the efficacy of Banox when combined with salt as a rust inhibitor. Wauwatosa used it in its snow-removal work last winter. Banox is a polyphosphate produced by Calgon, Inc., Pittsburgh, Pa. Tests at Akron, Ohio, and elsewhere show that when polyphosphate and salt are mixed in a ratio of 1:100 and put on the street, little or no auto-metal-parts corrosion will result.

Announcing

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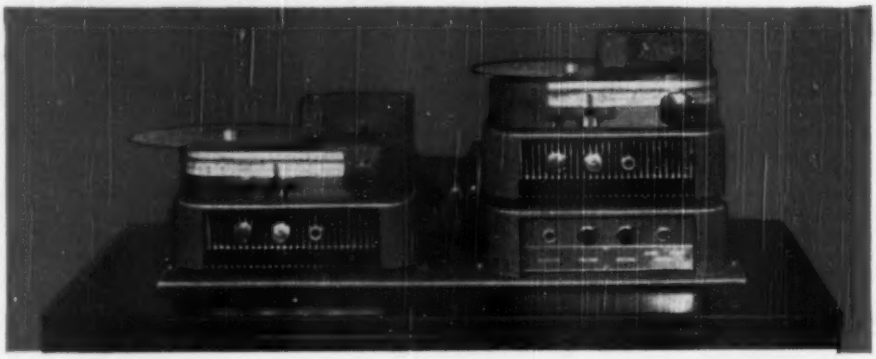

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Public Safety

Air-Conditioning Systems As Fire Spreaders

AIR-CONDITIONING systems are of three types: (1) summer air-conditioning systems which cool, dehumidify, and circulate the air; (2) winter air-conditioning systems which heat, humidify, and circulate, and (3) year-round air-conditioning systems which perform the functions of both summer and winter systems. A complete air-conditioning system also cleans the air and provides ventilation by admitting some fresh air. Circulation is produced by fans and duct systems; heating by steam or hot-water coils or by coal-, gas-, or oil-fired furnaces; cooling by use of ice or mechanical refrigeration, and cleaning by air washers or filters.

One of the best ways to reduce the possibility of having an air-conditioning system spread fire throughout a building is to divide the system in a large building into several parts with wholly separate duct systems for each part. In this way the area subject to fire attack through the duct system can be definitely limited.

Hazards of Bottled Gas

USE of bottled-gas systems for heating and cooking has steadily increased in rural and suburban districts. These systems utilize mixtures of propane and butane, which are in a liquid state only when under pressure. For this reason, they are termed liquefied petroleum gases. A requirement of cardinal importance is that the cylinders or drums and control equipment used in connection with these systems be installed outside of buildings, well removed from all openings whereby escaping gas may enter or accumulate within the building.

In addition to the use of these gases for cooking and lighting, their introduction into the commercial field is becoming general in connection with heat-treating furnaces, small boilers in tailor shops, and other special uses.

Every fire chief and public-safety official should thoroughly understand that these gases are in reality a form of gasoline. Their economic value cannot be disputed, but systems employing them must be installed in compliance with the Standards for Liquefied Petroleum Gases of the National Board of Fire Underwriters.

Modern Ladder Trucks

Modern aerial ladders are made in three or four sections, metal taking the place of wood. Lengths are 75 or 85 feet and the multiple-section ladder 100 feet or longer.

Because of the cost of an aerial-ladder truck, the difficulty of getting it near buildings set back from the street, and the fact that its length makes it hard to handle in narrow streets, most of the ladder trucks in service in American cities, and especially those in service in residential areas, are equipped with service ladders rather than aerial ladders. Service-ladder trucks generally carry a 45- or 50-foot portable extension ladder. This type of service-ladder truck is being supplanted by the service aerial truck, which is a direct-drive, short-wheelbase-ladder truck with a 50- to 65-foot power-raised aerial ladder.

Another marked trend in ladder-truck design, especially in residential areas, is the so-called "quad," which is a service-ladder truck with a 100-gallon water tank, a fire pump, and both booster hose and a 2½-inch hose. Such a truck renders service both as an engine company and a ladder company.

As ladder trucks are primarily for life-saving, there is little need for more than the usual first-alarm assignment even for serious fires. This results in leaving quite a few truck companies in service when fire conditions require the response of all or many of the engine companies. To make these truck companies available for effective fire fighting it is becoming common practice for some departments to place a pump on all ladder trucks, even of the aerial type.

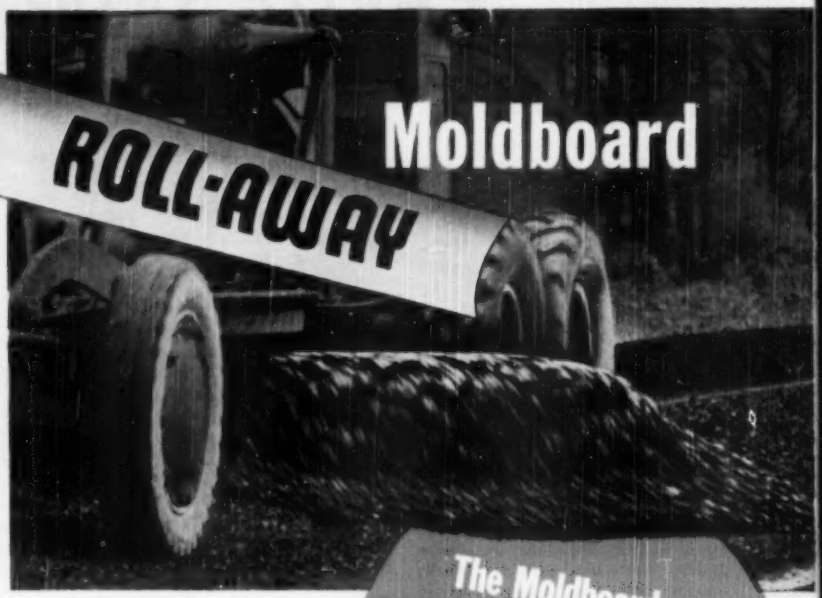
The preceding three items are excerpts from recent bulletins issued by John A. Neale, new chief engineer of the National Board of Fire Underwriters, 85 John St., New York 7, N. Y.

New Fire Apparatus - For Phoenix, Ariz.

Here on review in Encanto Park are five pieces of Seagrave equipment, tested and accepted last June. The group of four fire trucks (left) consists of one combination squad car and 1,000-gallon pumping engine (extreme left) and three identical 1,250-gallon pumping engines. The aerial truck (above) has a 100-foot all-metal ladder.

Only Allis-Chalmers Motor Graders

have the ROLL-AWAY Moldboard



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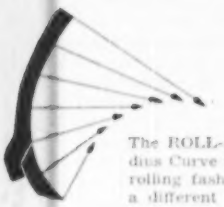

The ROLL-AWAY Moldboard has an Involute or Variable Radius Curve that lifts material up and moves it away in an easy, rolling fashion. Each part of the blade forces material toward a different point instead of a fixed point — prevents packing, power waste and drag on the entire machine. Material moves WITH an Allis-Chalmers Motor Grader — not against it!

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AD-3	78	21,825 lb.
BD-3	78	19,042 lb.
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Airports and Aviation

How Michigan Airports Operate

OUT of 43 typical Michigan municipalities, 19 lease their airports to a private operator, rather than operate them themselves; 7 manage them under a separate department; 7 operate them under a committee or a commission within the municipal government; 5 make them a division of an existing department, and 5 have other miscellaneous methods of management. These were some of the results uncovered by Eugene G. Moody, Research Assistant at the Institute of Public Administration, University of Michigan, and released recently in Information Bulletin No. 63.

The bulletin shows that the larger cities prefer to operate their airports themselves, while smaller municipalities generally lease their airports to private operators. Several of the airports are joint projects of two or more municipalities or of a city and a county. The Saginaw-Bay City-Midland Tri-City airport, the St. Joseph-Benton Harbor Ross Field, and the Otsego-Plainwell airport are all operated under boards composed of members of the various municipalities. Nearly all the operating municipalities employ an airport manager whose sole municipal duties are those of managing the airport.

The survey shows that in Michigan, the capital outlay for a municipally owned airport is so great that it becomes prohibitive unless the state or federal government can take a hand. Of the Classes III and IV airports, the municipalities contributed 23% of their capitalized cost, the U. S. Government contributed 58%, and the miscellaneous other sources accounted for the balance. In Class II airports, the municipalities contributed 55% and the U. S. Government 12%. In Class I airports, the municipalities contributed 64% and the government 6%. The large CAA Classes III and IV airports were built primarily with federal funds. The Battle Creek airport, Kellogg Field, and the Traverse City airport, among others, were U. S. Government military fields during World War II.

For expenditures at Classes II, III, and IV airports, nearly half was for salaries, and a quarter was for capital outlay costs. The balance went for maintenance, light, heat, power, and insurance. These airports realized roughly 40% of their revenue from hangar and building rentals. Gas and oil sales brought in 42% of the revenue for the Class II airports, and 27% for the larger ports. The balance was raised through land rentals, landing fees, concessions and other miscellaneous sources. Of the 16 municipalities operating their own airports last year, eight showed an operating profit. The larger airports were able to operate at a profit, excluding capital improvements and debt service, while the smaller ones operated in the red.

The Institute of Public Administration recommends great care when drawing leases in the event that the municipality chooses to have an operator manage the airport. Specifically, it recommends that the lease should state:

1. That the operator, not the municipality, shall be liable in case of injury or damage at the airport.
2. That the operator should carry sufficient insurance to meet these needs.
3. That the operator should submit periodic financial reports.
4. That the operator should be required to maintain proper standards of safety, maintenance, and service.
5. That the operator should make the port facility available for frequent inspection, so that complaints from airport users can be investigated promptly.

Airport Policy Developments In Civil Aeronautics Program

THREE important developments have taken place in the airport field as it affects federal participation through the Civil Aeronautics Administration. The first is the CAA policy for airport construction under the Federal Aid program. The second is the reallocation of money made possible by the Cordon amendment to the Federal Airport Act. The third is the newly formed industry-government Airport Use Committee aimed at providing solutions to local airport- and air-traffic problems. These events were outlined by D. W. Rentzel, Administrator of Civil Aeronautics, before the Airport Operators Council, in Cleveland recently.

The policy on airport construction calls for federal participation on only one runway or landing strip on Class I or personal-type airports, and federal participation in the construction of an additional new runway or runways on Class II, and larger airports, provided that such runways are necessary to expedite traffic and are so located to provide simultaneous use. This is a reflection of aircraft design using landing gear that is less affected by cross-wind conditions. Mr. Rentzel believes that this will result in more airport construction at more locations with present and future funds.

The reallocation of money was made possible by a bill sponsored by Senator Guy Cordon of Oregon, and is known as Public Law 382. The amendment permits CAA to pick up all unused or unobligated funds and reapportion them back among the states under the formula of 75% to the states on an area-population basis and 25% to the Administrator's discretionary fund. This amendment keeps the federal funds in circulation and makes them available to cities and towns ready to proceed with construction. It means that some areas will lose funds, although in almost all cases the communities affected have been unable to provide matching funds at the time federal funds were available.

The Industry-Government Airport Use Committee, which is the last development, was formed to conduct surveys at all major air terminals for the purpose of determining ways and means of obtaining the highest degree of safety to all airport users; to relieve air traffic congestion; and to encourage civilian and military use if possible. Recommendations already have been made at six locations: Chicago, Minneapolis-St. Paul, St. Louis, Jacksonville, Newark, and Boston. It is currently studying the Miami and Los Angeles areas.

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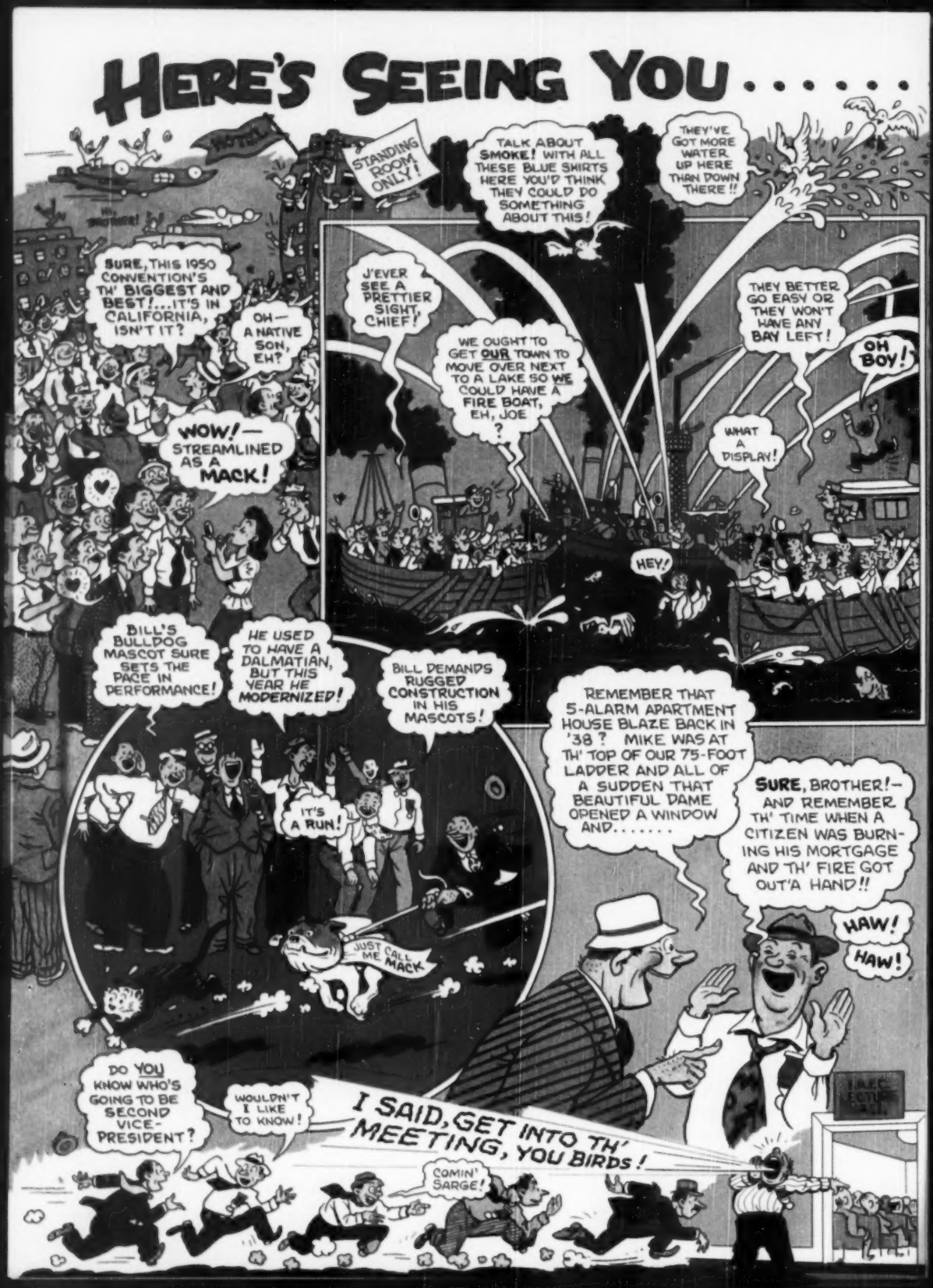
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STANDING ROOM ONLY!
TALK ABOUT SMOKE! WITH ALL THESE BLUE SHIRTS HERE YOU'D THINK THEY COULD DO SOMETHING ABOUT THIS!
THEY'VE GOT MORE WATER UP HERE THAN DOWN THERE!!
SURE, THIS 1950 CONVENTION'S TH' BIGGEST AND BEST!...IT'S IN CALIFORNIA, ISN'T IT?
OH— A NATIVE SON, EH?
WOW!— STREAMLINED AS A MACK!
J'EVER SEE A PRETTIER SIGHT, CHIEF!
WE OUGHT TO GET OUR TOWN TO MOVE OVER NEXT TO A LAKE SO WE COULD HAVE A FIRE BOAT, EH, JOE?
THEY BETTER GO EASY OR THEY WON'T HAVE ANY BAY LEFT!
OH BOY!
WHAT A DISPLAY!
HEY!
BILL'S BULLDOG MASCOT SURE SETS THE PACE IN PERFORMANCE!
HE USED TO HAVE A DALMATIAN, BUT THIS YEAR HE MODERNIZED!
BILL DEMANDS RUGGED CONSTRUCTION IN HIS MASCOTS!
IT'S A RUN!
JUST CALL ME MACK
REMEMBER THAT 5-ALARM APARTMENT HOUSE BLAZE BACK IN '38? MIKE WAS AT TH' TOP OF OUR 75-FOOT LADDER AND ALL OF A SUDDEN THAT BEAUTIFUL DAME OPENED A WINDOW AND.....
SURE, BROTHER!— AND REMEMBER TH' TIME WHEN A CITIZEN WAS BURNING HIS MORTGAGE AND TH' FIRE GOT OUT'A HAND!!
HAW! HAW!
DO YOU KNOW WHO'S GOING TO BE SECOND VICE-PRESIDENT?
WOULDN'T I LIKE TO KNOW!
I SAID, GET INTO TH' MEETING, YOU BIRDS!
COMIN' SARGE!

. . AT THE 1950 SAN FRANCISCO I.A.F.C. CONVENTION!

By GRAHAM HUNTER

GREETINGS!— ARE YOU A NATIVE CALIFORNIAN?
LISTEN, VOL,— AIN'T YOU EVER HEARD OF FLORIDA?
IT WASN'T TH' EARTHQUAKE— IT WAS THE FIRE!
SO?
THINK THIS CABLE CAR WILL MAKE TH' GRADE?
CERTAINLY, BROTHER!— IT'S BEIN' TOWED BY A MACK!
IF YOU HEAR ANYTHING CRACK IT'S MY RIBS!
WHEW!— MAYBE WE SHOULD'A HAD A RESCUE SQUAD TAG ALONG!!
HAVEN'T BEEN PACKED IN SO TIGHT SINCE OUR LAST FIREMEN'S DINNER!
THIS NIAGARA IS REALLY SOMETHING TO SEE!
YEAH, BROTHER— I WISH WE'D HAD ALL THIS PRESSURE-VOLUME AT OUR BIG PAPER WAREHOUSE 5-ALARMER!!
OUR DEPARTMENT'S GETTING A 1,000 GALLON MACK PUMPER, HARRY.
YOU OUGHT TO SEE OUR NEW MACK AERIAL LADDER TRUCK, CHIEF!
SORRY, OFFICER— 62,000 HOTEL BEDROOMS AND ALL OF 'EM BOOKED UP.
!
C'MON, BOYS — HOOK UP AND STRETCH IN!!
ZOWIE!— WE ROLL!
WHERE'S ALL THAT FIRE FIGHTING ENERGY OF YOURS, GEORGE? WE'VE ONLY SEEN FISHERMAN'S WHARF, DE YOUNG MUSEUM, THE WAR MEMORIAL, GOLDEN GATE BRIDGE, THE EMBARCADERO, AND COIT TOWER.... WE STILL HAVE TO DO CHINATOWN!!
HEY, POP!— I GOT A 3-ALARM APPETITE! WHEN DO WE EAT?
ARE THOSE WOMEN DISCUSSING TH' NEW MACK, OR THEIR OLD MAN?
WHEW! I'M BUSHED!
OH, FER A LITTLE REST!
DON'T THESE SMOKE-EATERS EVER GO HOME!

Your copy of these pictorial convention "highlights" will be waiting for you at the Mack Booth. Write for your copy if you can't be there.

A large reproduction of these scenes will be a Door Prize at the Mack Booth. Be sure you get your entry in! Best wishes for a memorable convention.

BE PERFORMANCE-WISE

Modernize with

MACK MANUFACTURING CORPORATION
Fire Apparatus Division,
Long Island City 1, New York

Mack
FIRE APPARATUS

Outlasts them all

Factory branches and distributors for service and parts in all principal cities. In Canada: Mack Trucks of Canada, Ltd.

TRIPLE COMBINATION PUMPERS—500 TO 2000 GPM . . . SQUAD AND HOSE CARS . . . AERIAL CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

Old Mother Nature can be mighty unpredictable. One mild winter doesn't always lead to another—especially when it comes to *snow*. But there's one thing of which you can always be sure: It pays to be prepared for the worst. And no matter how heavy the snowstorm, your snow removal problem is under control when you keep Baker Snow Plows on hand.

The Baker line includes the *right* snow plow for every class of snow removal work—a dependable plow for every motor truck of every capacity.

Your Baker Dealer will be glad to show you how you can move *more snow* at *less cost*—with Baker Snow Plows that are *matched* to your equipment and the conditions in your locality. Write for a copy of Bulletin 1002.

THE BAKER MANUFACTURING COMPANY · SPRINGFIELD, ILLINOIS

BRAXMAR BADGES

Standard Badges Since 1879

Write for circular illustrating badges for Police, Fire and other City, County and State Officials

John O. Veit, Pres.

C. G. Braxmar Co., Inc.
216 E. 45th St., New York 17, N. Y.

CIRCUL-AIR FIRE HOSE DRYER

WRITE FOR BOOKLET

Illustrates how Circul-Air saves hose, shortens drying time, prevents mildew and rot, air conditions as it dries, improves station design.

THE CIRCUL-AIR CORPORATION
575 E. Milwaukee Street
DETROIT 2 MICHIGAN

Street Construction & Maintenance

How Spokane Finances Sidewalk Improvements

IN SPOKANE, Wash., the property owner pays for sidewalk construction and repair. He pays either by doing the work himself or by meeting the city's cost for such construction. However, Washington cities have two other ways of financing such work. The three ways, reported by the Association of Washington Cities, are as follows:

1. They may be constructed by the municipality out of general fund revenues.
2. The municipality may require the owner of the abutting property to construct the improvement at his own cost.
3. The municipality may do the work, but assess all or any portion of the cost against the abutting property.

Spokane, in requiring the property owner to do the work, specifies that if the work is not completed within a specified time, the city forces will do the work and assess the cost against the property.

In order to expedite such work, which amounts at times to 100 projects, the city has developed special forms so that the Council may insert as many separate improvements as desired under one resolution. In addition to construction costs, each property owner, with the exception of those who do their own construction, must pay a $3 flat fee to care for the expense of handling the funds and general administrative costs. The fee is disbursed to city departments as follows: to the Auditor, 30 cents; Treasurer, 50 cents; Clerk, 75 cents, and Public Works Department, $1.45.

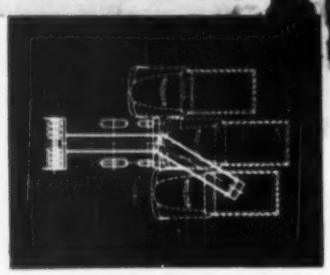
Grading a Street for Asphalt Paving

A few passes with an Adams No. 512 grader, owned by the city, puts this San Diego, Calif., street to the proper elevation for an asphalt surfacing job.

Barber-Greene

New model 548-A SNOW LOADER

Clears streets fast
Saves up to 75% trucking costs...



Parallel Loading Speeds Traffic—Cuts Loading Time

The 548-A's hydraulically operated Swivel Boom Conveyor facilitates fast loading with least interference to traffic.

In the new 548-A Snow Loader, Barber-Greene offers many features of importance to those responsible for keeping busy streets clear of traffic-bogging snow. The pneumatic-tired 548-A is equipped with the B-G Swivel Discharge Conveyor that reaches over truck cabs . . . allows trucks to travel in same direction, behind or on either side of the loader . . . cuts trucking costs as much as 75% through more efficient loading. Spiral feed assures down-to-the-pavement clean-up of up to 20 cu. yds. per minute. Truck-type, four-wheel drive, and four-speed transmission. Enclosed cab is optional. Ask your B-G distributor about other advanced features.

BARBER-GREENE COMPANY • AURORA, ILLINOIS

Constant Flow Equipment

Tampa Sewerage Program To Be Completed in Two Years

TAMPA'S growth during the past 25 years — from 95,000 in 1925 to 135,000 at the present time — has made a substantial sewerage program mandatory. The existing sanitary system fails to reach 20% of our population, or 42% of our 12,000-acre area. We at present have no treatment plant.

To rectify these shortcomings, the city has adopted a Master Sanitary Sewer Program. This provides for the construction of about 68 miles of direct-service sewers in areas which are not now served for intercepting sewers; it also provides for pumping stations, a sewage-treatment plant, and an effluent outfall line into the Bay. The sewers are designed to provide, when constructed, a service to substantially all developed areas within the city limits.

The sewage-disposal system is to include the construction of about 28 miles of intercepting sewers and force mains ranging in size from 10 to 60 inches in diameter. A total of 12 pumping stations will collect sewage and convey it to a treatment plant to be located at Hooker's Point, near the ship-channel entrance. Of these pumping stations, all but two are to be relatively small lift stations. There are to be two major pumping stations.

The sewage-treatment plant will include structures to provide treatment by sedimentation and chlorination, and also includes facilities for the separate digestion of sludge and the use of the gas produced for generating the power required in the sewage-treatment-plant operation. Subaqueous pipeline will discharge the treated sewage into the deeper waters of the Bay, about a half mile from the southernmost end of Hooker's Point.

The total estimated cost of the Master Program within the city was fixed at $13,000,000 divided between sewer improvements and the sewage-disposal system, about $2,800,000 and $10,200,000 respectively. For the financing of this program it was recommended that the major cost of the sewer improvements and sewage-disposal system be defrayed by the sale of bonds secured by revenues from service charges.

Bids were received on the $8,000,000 initial block of the revenue bond issue early in October and this block of the bonds was sold at an average interest rate of approximately 3.23%.

First construction work was actually started on December 12, 1949. The construction of the entire Master Sanitary Sewer System is estimated to be completed and in operation by the first of the year 1952.

ROY K. VAN KAMP

Buffalo's Sewer-Connected Commercial Grinder

THE growing consideration, from a municipal point of view, of garbage grinders in food-waste disposal compels study of the large commercial units as well as the domestic sizes. Where the trend in the capacity of the household grinder appears to be toward the one-quart size, with two quarts for establishments a little larger, the commercial grinders are rated around 150 gallons per hour in restaurant sizes or 40 to 200 bushels per hour for use by packagers and markets.

An installation was made in a large food warehouse in Buffalo, N. Y., where ready-made cole slaw and mixed salad had been purchased for distribution. A year ago it was decided to make salad on the premises. During the season, November to May, there would be 10 to 15 bushels of waste per day. This waste could be put in cans and the cans carried out of the building by men and loaded into hired garbage trucks for disposal. Or the waste could be dumped into a commercial grinder and the grindings dropped into the city sewer. The second method was decided on, and a full season's experience has demonstrated the wisdom of the choice from standpoints both of economy and sanitation.

The machine selected was a Buffalo vegetable waste-disposal unit made by Buffalo Hammer Mill Corp., 27 Washington St., Buffalo 3, N. Y. Rated 100 bushels per hour, the unit is larger than actually necessary for a load of 15 bushels a day. However, it was deemed better to have available a disposer with a hopper capable of receiving large quantities at a time instead of slow feeding spread over a longer period and requiring man-hours for the feeding. In fact, the user constructed an 18-inch-high extension around the top of the hopper, doubling the capacity for the immediate reception of waste. A buffer board on one side prevents spilling waste when loading the hopper.

The city voiced no objection to the installation. Three years ago a Councilman asked the attitude of the Buffalo Sewer Authority toward city-wide installations of food-waste disposers. The engineering opinion was unfavorable because two-thirds of Buffalo's 700 miles of sewers are "very flat." In dry spells the normal sanitary-sewage solids settle in these lines. When a storm comes, either an undue volume of these solids descends on the treatment plant or there is a stoppage, requiring cleaning. On the other hand, no difficulties have been caused by the installations of individual garbage grinders.

How Montclair Cleans Its Sewers

SEWER maintenance has developed into a skilled, thoroughgoing routine in Montclair, N. J., under the leadership of Town Engineer Fred Galloway. The maintenance crew must care for 36 miles of storm sewers with 1,600 inlets, and 95 miles of sanitary sewers.

To clean these sewers, the crew uses Turbine Sewer Machine Company drag-bucket equipment. This includes a windlass on each end of a sewer run between manholes; 800 feet of ⅝-inch steel cable; 400 feet of heavy-duty floating sewer rods; braces; pilot drags; varying sizes of root and sand buckets; brushes, and other miscellaneous equipment. On the repair truck also are pumps, a Homelite gasoline-powered generator with floodlights, and other equipment.

Total cleaning expense last year was $16,897. The crews cleaned 1,025 inlets and removed 1,051 cubic yards of material at a cost of $3.93 per cubic yard. Emergency and routine cleaning of sanitary lines to remedy stoppages or prevent conditions which might develop into stoppages required dragging 58,734 lineal feet at a unit cost of $.102.

Various brushes and drags put a polish on the sewers in Montclair, N. J.

REDUCE COSTS

of compressor operation by using the air compressor oils exactly suited to YOUR operating conditions...TEXACO

Air compressors operate under a variety of conditions – and there is no one oil that will do a highly satisfactory lubricating job under all of them. But there is a Texaco air compressor oil to meet every requirement. Follow the recommendations of your Texaco Lubrication Engineer and – whatever your conditions – you'll assure more efficient, more trouble-free performance . . . reduced wear and lower maintenance costs.

For instance, where conditions tend to produce rust in any part of the system, there are Texaco *rust-inhibited* air compressor oils designed to prevent it. If service is very severe and carbon and gum are problems, one of the Texaco *heavy-duty* air compressor oils will assure clean operation. Under "wet" cylinder conditions, use a Texaco *compounded* air compressor oil . . . and a Texaco *straight mineral* air compressor oil for normal conditions.

Also follow your Texaco Lubrication Engineer's recommendations for lubrication of your drills. *Texaco Rock Drill Lubricants EP* are "extreme pressure" lubricants designed to protect against wear and rust . . . assure longer drill life and lower maintenance costs.

Talk to a Texaco Lubrication Engineer about these cost-saving lubricants. Call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

Ask For What You Want—No Charge!

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write directly to the manufacturers, or circle the identifying numbers on this coupon and mail to THE AMERICAN CITY MAGAZINE, 470 Fourth Ave., New York 16, N. Y. We will see that catalogs are sent to you without expense or obligation.

9/50

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Name ..... **Position** .....

Address .....

Better Fire Hose

504 "Duraflex" is a new and improved type of fire hose that all municipal officials are being invited to inspect. The manufacturer asserts that it will make an outstanding record for fire-fighting efficiency. A description of this Duraflex hose may be obtained from Robert D. Baird, President, Bi-Lateral Fire Hose Co., 20 N. Wacker Drive, Chicago 6, Ill.

Street Flusher Sprays Trees, Fights Fires

505 Etnyre street flushers are also used for tree spraying, watering shrubbery, fire fighting, as well as for year-'round cleaning of streets, cross street syphons, and sewers. Available in four styles; front or rear engine drive; equipped with 3 nozzles, 600-gpm pump, 300- to 3000-gallon tank. Write to E. D. Etnyre & Co., Oregon, Ill.

Pick Your Surveying Instrument

506 Whether it is a transit, level, alidade, hand level, or level rod and tape, you can count on the craftsmanship that years of experience can bring as a guarantee of reliability. You can satisfy as to reliability and get full details on the instruments by writing for Catalog No. 5 from W. & L. E. Gurley, 510 Fulton St., Troy, N. Y.

Tax Calculator

507 There is a fully automatic Tax Calculator that figures personal property tax, both installments, and the total tax, in one continuous operation. It is, of course, equally able to compute real-estate taxes. Literature or a demonstration can be obtained from your Friden representative or from the Friden Calculating Machine Co., Inc., 2350 Washington Ave., San Leandro, Calif.

Latest Design Crawler Tractor

508 International Harvester has published a new 24-page catalog describing the new International TD-18A crawler tractor. Two-color pictures, sectional views, and diagrams fully illustrate every feature of the machine. Write to International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill., and ask for Catalog TD-18A, Form No. A-154-NN.

Grinds Bulky Brush to Chips

509 The M & M portable brush grinder will solve your brush disposal problem, and produce fuel for the power plant or incinerator at the same time. For complete information, write to Mitts & Merrill, 104 Holden St., Saginaw, Mich.

Soft Water—How To Get It!

510 Today's water supplies must be more than merely free of harmful bacteria, they must also be free of taste, and of dissolved minerals that make life hard not only for the housewife, but for your community's industry. General Filter Co., 932 Second St., Ames, Iowa, can help you achieve this aim. Its equipment includes water softeners of all types, iron removal units, chlorinators, aerators, and other items. Write to General Filter and ask for literature describing this equipment, and tell them of your special problems.

Two Parking Meters In One Housing

511 Each Karpark Twin-O-Matic parking meter times two cars, and cuts in half the number of installations needed. Initial cost is cut to a minimum; serving and collection are speedy, with low maintenance cost. For further information, write The Karpark Corp., Cincinnati 6, Ohio.

Snow Throwers

512 Maxim snow throwers — hand-operated, self-propelled, rotary snow plows—are now available in three models, with capacities of 890, 240, and 170 cubic feet per minute. Largest 7.2-hp machine is designed for state and city public works departments or commercial use. Write to Maxim Silencer Co., 85 Homestead Ave., Hartford 1, Conn., for descriptive folder.

Mast Arms for Street Lighting

513 The Hubbard Truss Type, Upsweep Mast Arms, Series No. 3944, have exceptional strength in all sizes, greatly in excess of the most severe service requirements. For information about these low-cost streetlight arms and brackets, write to Hubbard & Co., 6301 Butler St., Pittsburgh 1, Pa.

Permanent Memorial Tablets

514 Record historical events and perpetuate the name of citizens your city wants to remember, with Erco cast-bronze memorial tablets. For descriptive booklet write to Erco Mfg. Co., 2368 N. Elston Ave., Chicago 14, Ill.

Street Lighting Poles

515 Modern, smooth, steel lighting standards provide strength, economy, and low maintenance. A detailed description is contained in Bulletin No. 14, available from the National Tube Co., Frick Bldg., Pittsburgh 19, Pa.

New Stationary Diesel Engines

516 The all-new, Series M, Enterprise stationary diesel engines are designed to give tough and continuous operation at medium speeds—years of smooth power. Write for the new Enterprise, M-Series Bulletin No. M-16, Enterprise Engine & Foundry Co., 18th and Florida Sts., San Francisco 10, Calif.

Submersible Pumps Save Taxpayers' Money

517 You save on construction, operating, and real estate costs with Byron Jackson submersible pumps. Equipped with a special submersible motor, this pump answers many municipal water pumping problems. For information, write to the Byron Jackson Co., Pump Div., P. O. Box 2017, Terminal Annex, Los Angeles 54, Calif.

Modern Lighting Standards

518 Elreco manufactures 23 styles of standards and brackets, all illustrated in the company's new 16-page catalog which also contains a set of line drawings tracing streetlighting standard design from 1895 to the present. For your copy, write to The Elreco Corp., 2900 Cormany Ave., Cincinnati 25, Ohio.

Works Where a Roller Can't . . .

519 One man operates the 240-pound Wayer Impactor, with no tie-up of busy roads or streets; for patching pavement, removing roller marks from new work, paving drives, walks, small areas, and maintaining rail crossings. For descriptive folder, write to Wayer Impactor, Inc., 12 N. Third St., Columbus 15, Ohio.

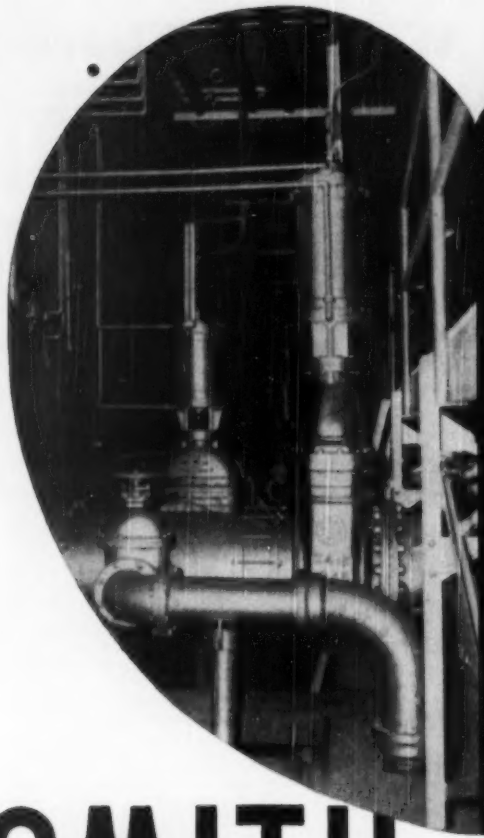
Motorcycles Get Around For Police Work

520 The motorcycle officer can thread through traffic congestion to cover a great amount of territory—and get to trouble spots fast. Write for information about the various styles of Servi-Cars and motorcycles available from the Harley-Davidson Motor Co., Milwaukee 1, Wis.

Protect Your Firemen

521 Firemen need Scott Air-Pak to give them complete protection from smoke or toxic fumes. This entirely self-contained unit allows the fireman to breathe good *air*, and protects his eyes at the same time. Write for information to the Safety Equipment Div., Scott Aviation Corp., 191 Erie St., Lancaster, N. Y.

(Please Turn to Page 29 for More Literature)



THE HEART OF THE RICHMOND FILTER PLANT

SMITH VALVES

Heart of the new Richmond Filter Plant are a number of Smith-designed, Smith-built, Richmond Specification 300 lb. test Pressure Gate Valves. Valves vary from 8" to 30" in size and are continually being opened or closed for accurate regulation of the flow of raw water, wash water and filtered water. Most of the Valves are hydraulically operated of the Square Bottom Case and Disc Type with wash water Valves provided with throttle track construction. Long life is assured by the Square Bottom construction which prevents the downstream disc tilting into the port opening and minimizes disc and seat ring wear. The Cast Iron-Brass Lined Hydraulic Cylinders were fitted with limit switches with red and green lights indicating the fully closed or fully open Valve positions. This construction eliminated the need of complicated mechanical position indicators. Wash water piping expansion and contraction is compensated for by using Valves with a flanged and a plain end to accept a mechanical joint coupling. All Valves supplied by Smith for the Richmond Filter Plant were skillfully designed, engineered and ruggedly constructed for dependable long life service under frequent and severe operating conditions. Write for information on Smith Filter Plant Valve design.

THE A.P. SMITH MFG. CO.
EAST ORANGE, NEW JERSEY

Which Catalog Interests You?

Use the Coupon on Page 27

When Roads and Pavements Need Repairing . . .

522 Roadbuilders save as much as $3,000 per mile with a Wood P-600 Preparizer. It tears up old asphalt or macadam surfaces and pulverizes into select aggregate for low-cost reuse. For details address Wood Manufacturing Co., Box 620, 6900 Tujunga Ave., North Hollywood, Calif.

Effective Algae Control in Pools, Reservoirs, Cooling Systems

523 Nalco Cuprose is the trade name of a copper-citrate combination, two to five times as effective as equal dosages of copper sulphate for killing algae growth on water. For details of Nalco Cuprose and slime and algae control, write to National Aluminate Corp., 6216 West 66th Place, Chicago 38, Ill.

Leakproof, Worryproof Pipeline River Crossings

524 The Boyce Co., Clearwater, Fla., has a record of successful pipeline installations under the most difficult river-crossing conditions. Boyce experienced crews will solve any under-water pipeline problems your water department may have. Write for free consultation.

Chain Saws

525 McCulloch chain saws make quick work of large or small trees. Made for every kind of sawing—topping, pruning, felling, bucking—on the ground or in the the tree. For help with your ground-clearing problems, write to McCulloch Motors Corp., Los Angeles 45, Calif.

Danger Signs at Work

526 Many cities insure the safe transportation of projecting beams, or poles with the Roto-Signal Model B warning device. 900-pound pressure grip firmly clasps projection, eliminates danger of signal slipping out of sight. For folder write Roto Signal, Inc., Brecksville, Ohio.

Lawn Maintenance

527 Don't burn autumn leaves, use them as plant food, with the Mow-Master Grid-a-Leaf mower attachment. This new attachment pulverizes leaves, makes mulch for better lawn growth. Write to Propulsion Engine Corp., 7th St., and White Eagle Road, Kansas City 15, Kans.

Lower Sewage Plant Construction Costs?

528 Lower by 15 to 50% over conventional plants is the way the Bio-Chemical Process Co. sees it, if you follow its designs standards. The Bio-Chemical, or Guggenheim, process uses a chemical in the presence of air to produce treatment. A new folder gives all the details. Write to Bio-Chemical Process, 2266 North Meridian St., Indianapolis 6, Ind., to get your copy.

Extra Heavy-Duty Storage Batteries

529 The Hand Laboratory, Nyack, N. Y., will send you information about its line of storage batteries for police radio cars, sanitation trucks, snow plows, sweepers, emergency trucks, ambulance and fire apparatus. These batteries have heavy, ultra-low antimony plate frames, heavy glass mats, and acid and heat resisting microporous rubber separators.

Enclosed Garbage Collection Trucks

530 The Gar Wood load packer will reduce your collection costs and improve sanitation in your city. Having an exceptionally low center of gravity, the load-packer is equipped with twin cylinder underbody hydraulic hoist giving a surplus of hydraulic power for compression. Bulletin M-60 will help you reduce refuse collection costs and improve public health. For your copy, write to Gar Wood Industries, Inc., Wayne Div., Wayne, Mich.

For Cutting Pipe Under Difficult Conditions

531 The Wachs saw is air-powered and can cut under water for difficult jobs; handles all pipe cuts from 10- to 48-inch diameter cast iron, steel and cast-iron cement-lined pipe; the manufacturer assures tight joints because of the square-milled cut, or beveled cuts for good welding lands if preferred. For descriptive folder and engineering data on this new labor saving saw, write to the E. H. Wachs Co., 1525 North Dayton St., Chicago 22, Ill.

Self-Priming Centrifugal Pumps

532 The fast, positive self-priming action of Goulds small self-priming centrifugal pumps is due to the unique volute design which enables these pumps to exhaust a suction line of air with only an initial priming charge of the liquid in the casing. Made in sizes ranging from ¾ hp to 5 hp, capacities to 120 gpm, heads to 135 feet, depending upon capacity. Write to Goulds Pumps, Inc., Seneca Falls, N. Y., for Bulletin 636.1.

Convenient Electrical Equipment Listing

533 The newly compiled "*Abridged Listing*" being issued by the Crouse-Hinds Co., Syracuse 1, N. Y., features over 85% of the C-H line of electrical equipment in a conveniently sized catalog weighing only 20 ounces. Distribution is being made to established trade lists. Request Catalog 3100 from the Crouse-Hinds office in your district.

To Locate Underground Pipe

534 The M-Scope pipe locator eliminates the danger of accidental pipe breakage during excavation work. Operated by one man, the device is contained in metal-cased cabinet, and is fully guaranteed. Write to Fisher Research Laboratory, Inc., Palo Alto, Calif., for illustrated literature.

Save Man-Hours With Mechanical Joint Valves

535 Eddy mechanical joint valves need no caulking or lead-melting; joints are bottle-tight under pressure. Available in sizes 3 to 12 inches for use on both centrifugally cast and sand-cast iron water pipes. To learn more about these valves, write to the Eddy Valve Co., Waterford, N. Y., a subsidiary of James B. Clow & Sons.

Reduce Policing Time Of Parking Meters

536 Martin Red Ball parking meters are designed with a red ball that pops up in case of a violation—a red ball that is visible 500 feet in any direction. As a result, merely a glance down the block will tell the officer in charge whether or not anyone is overparked. Write for information to Martin Red Ball Parking Meters, Div. of the J. W. MenHall Drilling Co., Oil Producers, Benton, Ill.

For Civil Defense Preparation

537 "*When Power's Off . . . You're Safe!*" is the title of a new booklet recently issued by D. W. Onan & Sons, Inc., Minneapolis 5, Minn., manufacturers of electric generating plants. The booklet tells how any business, factory, institution or home can be protected against results of power failures. Write for Standby Folder A-277.

Loader for Wheel Tractors

538 You can dig in front and dump in front, or dig in back and load in front with the new Strait-Line loader manufactured by the Oliver Corp., 19300 Euclid Ave., Cleveland 17, Ohio. It saves time and fuel, loads better than a yard a minute.

Traffic Signals for Safety

539 A dependable network of traffic signals can cut the rate of accidents appreciably. The Eagle Signal Corp., Moline, Ill., makes traffic lights that have front-of-dial adjustment for changing the length of street intervals as well as amber periods.

Fewer Hydrant Working Parts Mean Greater Dependability

540 The simplicity of construction of Mathews modernized hydrants is an important factor in accounting for the fact that there are Mathews hydrants in operation today that were installed over 70 years ago. Write the R. D. Wood Co., Public Ledger Bldg., Independence Square, Philadelphia 5, Pa.

Sheeting Can Be Used Again

541 Armco steel sheeting sections pull easily without damage, so that they may be used over and over for shoring trenches, and constructing cofe walls, cofferdams, and bulkheads. Write for information to Armco Drainage and Metal Products, Inc., 5240 Curtis St., Middletown, Ohio.

105 Cubic Feet of Air per Minute

542 The Smith 105-P compressor, delivering 105 cubic feet of air per minute, has a self-starter, battery ignition, voltage regulator, and large radiator capacity with thermostat for quick warm-up. Write for literature to Gordon Smith & Co., 425 College St., Bowling Green, Ky.

Beat Back the Snow

543 Snow, threatening many regions for almost half the year, challenges commerce, industry and life itself. The solution to beating it back, and the tools to use, are given in Caterpillar Tractor Co.'s new booklet, "*Beat Back the Snow with Caterpillar Equipment.*" Write to the company, Peoria 8, Ill., and ask for Form 30023.

Plan Lighting With an Eye to Future Growth

544 Directolite reflectors use 1,000 to 2,500-lumen series or multiple lamps and the same head may be used for larger luminaires when population or traffic growth so requires. Two styles are made—a symmetrical and an asymmetrical—to provide the two different basic light curves. Write for a bulletin entitled *Directolites* to the Line Material Co., Milwaukee 1, Wis.

(Please Turn to Page 32 for More Literature)

What does snow do

YOU ARE protecting the taxpayers when you are equipped for fast, efficient snow removal.

Prevention of traffic accidents is only one factor. Look at some of the troubles that come with a heavy snowfall.

Fire hazards are multiplied if trucks are stalled or delayed by drifts. Sewers, clogged by ice or snow, are a threat to public health. Children going to school are exposed to greater risks when streets are deep in snow. Factory workers are kept from their jobs. All business is hampered.

With proper snow removal equipment, a city's life can go on with little interference from winter storms. And in thousands of cities and towns that equipment is found in the big yellow machines built by "Caterpillar."

"Cat" Motor Graders, equipped with plows and snow wings; "Cat" track-type Tractors with 'dozers or V-plows—these are practical snow-fighters that pay their way in year-round work.

They don't go into storage when the spring thaws come. All through the warmer months they're busy at street and highway maintenance and other municipal jobs. And when snow begins to fly they're ready to tackle the heaviest falls. Their rugged "Caterpillar" Diesel Engines are built to start fast in cold weather and keep going night and day. Every inch of these tough machines is "Caterpillar"-built. That means quality materials, sound engineering and long, economical work life.

Your "Caterpillar" dealer can tell you about the right machines for your needs and is prepared to give them the service that will keep them in fighting trim year in and year out.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

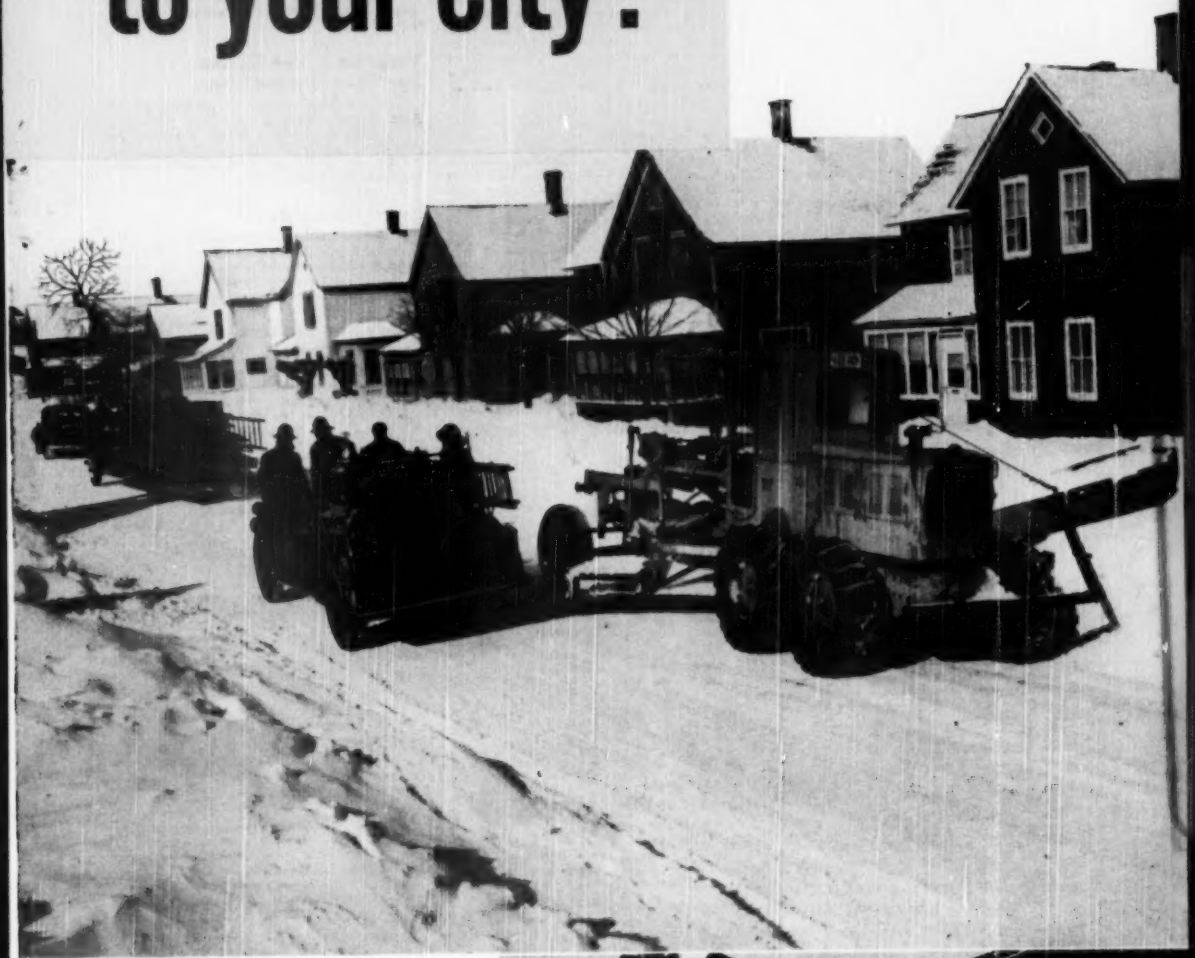
LOOK UNDER THE HIDE

"Caterpillar" intake and exhaust valves are made of highly alloyed, heat-resistant steels. Their ample size and close machining and heat-treat specifications have resulted in thousands of hours of trouble-free valve operation. Valve and rocker arm design are matched to reduce wear. Look under the hide for long-life quality features.

CATERPILLAR

REG. U. S. PAT. OFF.

to your city?



These firemen reached the scene of the fire in time because a "Cat" No. 12 Motor Grader had cleared the streets after a storm.

A "Cat" D4 Tractor bucks the drifts with its 'dozer blade, opening up safe crossings for school children.

DIESEL ENGINES
TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

Get This Literature – Free!

Use the Coupon on Page 27

An Airport Striping Paint That Won't Wear Off

545 Tempo-Lite, a casein-base, water-mixed, powder paint, has proved to last longer than oil-mixed paint when used for airport striping. A simply-prepared paint with high-reflection value, used for painting industrial, domestic and municipal building walls of all types, Tempo-Lite is manufactured by Symboloid, Inc., 618 South Clarence St., Los Angeles 23, Calif. Write for descriptive literature and color guide.

No Water Hammer

546 The Williams-Hager flanged silent check valve provides protection against water hammer. It has a renewable disc and seat and is built in standard pipe sizes from 1 to 20 inches. Write for Bulletin WH 100, the Williams Gauge Co., 3013 Pennsylvania Ave., Pittsburgh 33, Pa.

75 Years of Fire-Hose Service

547 The Eureka Fire Hose Div. of the United States Rubber Co., 195 Hudson St., New York 13, N. Y., will send you a brochure outlining the history of its company and the development of its circular-woven fire hose. *The* title of the booklet is *Some Memories of 75 Years.*

Better Rollers Mean Better Streets

548 Catalog S-60-50, available from the Buffalo-Springfield Roller Co., Dept. H-6, Springfield, Ohio, describes the type of rollers that were used in Baltimore, Md., to lay down over a mile of asphaltic binder and topping in sixteen hours in order to permit traffic to keep on during the operations.

Pumps for Water Works

549 The Type O D horizontally split case, double suction, single-stage centrifugal pumps made by the Aurora Pump Co., comes in capacities to 4,000 gpm and heads up to 300 feet. For use in general water supply treatment, the pumps are described in Condensed Catalog M and O D Bulletin 105; write the Aurora Pump Co., 66 Loucks St., Aurora, Ill.

For Improved Lawns

550 Your city can have smooth, velvety lawns in parks and public playgrounds with time-proven Dickinson lawn grass seed, which is blended according to tested and improved formulas. For information, write to The Albert Dickinson Co., 2764 West 35th St., Chicago 32, Ill.

Lift Production With a Swing Crane

551 The Model CD4 Truckson swing crane has a lifting capacity of 6,000 pounds, and the tractor drawbar is always free for hauling and pulling work. Power is transmitted to the crane mechanism from rear power take-off shaft of the tractor. Write for literature to the Truckson Co., Dept. AC, Milwaukee 1, Wis.

Road Machinery, Street Flushers

552 The Rosco Mfg. Co., 3110 Snelling Ave., Minneapolis 6, Minn., will send you a catalog describing its line of machinery for road work. Included in the brochure are details about its bituminous supply tanks, applicators, and distributors; folding spraybars; and street flushing and cleaning equipment.

Fighting Fire With Wetter Water

553 Unox penetrant is a liquid chemical that increases the ability of water to penetrate porous materials and to wet large surface areas. The result is that fires can be extinguished quicker with less smoke and with a minimum of water and water damage. Write for a brochure to the Carbide and Carbon Chemicals Corp., 30 E. 42nd St., New York 17, N. Y.

Water Meters

554 Two styles of water meters are available from the Buffalo Meter Co., 2902 Main St., Buffalo 14, N. Y.—the American, with a bronze case, and the Niagara, made with a galvanized iron case. Write for full particulars.

Legible Street Signs

555 The Cataphote Corp., Toledo Ohio, will send you a catalog describing its line of legible, low-priced street-name signs. These signs not only are visible both day and night, but also are visible for distances great enough to enable the driver to read them without having to slow down.

Restore Reservoirs With a Lining

556 The Cement Gun Co., Allentown, Pa., will send you its Bulletin D2400, which describes the use of Gunite for the repair and construction of reservoirs and other structures. The advantage of this method is that major repair work can be done at a comparatively low cost and frequently this is the only method that will substitute for the erection of a new structure.

The Lawn Depends Upon the Seed

557 Dickinson lawn seed is blended according to formulas that have been tested to provide the best lawn for different types of soil and climate and according to how much wear and tear the lawn will be subjected. Write for information to the Albert Dickinson Co., 2764 West 35th St., Chicago 32, Ill.

Maintaining Bituminous Pavements

558 Six modern, economical ways to improve and maintain old bituminous pavements are described in a new booklet published by the Universal Road Planer Corp., 83 South High St., Columbus 15, Ohio. Write for your copy.

Non-Rusting Chain Link Fence

559 The Copperweld Steel Co., Glassport, Pa., will send you a 26-page catalog describing and illustrating its various styles of chain link fence, treated to resist corrosion. Among the types available are styles designed specifically for utilities, institutions, playgrounds, parks schools, airports, and highways. Ask for Catalog No. 125.

Clamshell Buckets

560 Haiss clamshell buckets have been used for excavating, trenching, dredging, rehandling, since 1890. Capacities ¼ to 3 yards. For Bulletin No. H-175, write to the George Haiss Mfg. Co., Inc., Div. of Pettibone Mulliken Corp., 141st to 144th Sts. on Park Ave., New York 51, N. Y.

Cast-Iron Pressure Pipe

561 Super deLavaud centrifugal cast-iron pressure pipe in modern long lengths is manufactured by the Alabama Pipe Co., Anniston, Ala. Write to the company for complete information.

Versatile Motor Grader For Year 'Round Use

562 "For some jobs on all projects, for all jobs on some projects"—that's Allis-Chalmer's new 34.7-hp Model D grader, described in a neat 20-page, information-packed catalog. For your copy write to Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Bronze Markers

563 The Flour City Ornamental Iron Co., specializes in imperishable bronze tablets and historical markers, for every civic need. No obligation for design counsel. Write to the company, Dept. A, Minneapolis 6, Minn.

Ready for Autumn Leaf Problems

564 You can eliminate the dangerous fallen-leaf nuisance this year with a Good Roads Leaf Collector. The machine inhales leaves, chops them into fertilizer compost. For information or a demonstration, write to Good Roads machinery Corp., Minerva, Ohio.

A Street Flusher That Fights Fires

565 You get a gutter-to-gutter hurricane wash from any Standard Steel Flusher. Built for heavy duty, these Flushers can be also used for fighting fires. Write to Standard Steel Works, North Kansas City, Mo., for your copy of the new Flusher catalog.

Spray the Modern Way

566 Attach a Jari Power sprayer to any Jari Power scythe, fill the spray tank, and you're ready for any kind of spray job—whitewashing, orchard spraying, fertilizer spraying, and weed and insect control. For folder write to Jari Products, Inc., 2934G Pillsbury Ave., Minneapolis, Minn.

New Tabulator Aids Traffic Engineers

567 To analyze traffic quickly and accurately, use the new "Denominator tabulator. Counts cars turning left, right, or going straight ahead. Write to The Denominator Co., Inc., 261 Broadway, New York 7, N. Y., for descriptive booklet.

Compact Diesels

568 Compact, high-speed, 2-cycle General Motors diesel engines, direct-connected to high-capacity centrifugal pumps, put 800 to 1600 hp, complete with pumps and piping, into a space not much larger than a living room. Write Detroit Diesel Engine Division, General Motors, Detroit 28, Mich.

Street Lighting Methods

569 A comprehensive story of modern street and highway lighting techniques and equipment is available in *"The Stimu-Light-Or"*, a 12- page publication of the Westinghouse Lighting Div., Edgewater Park, Cleveland, Ohio. Subjects include seeing by Silhouette and contrast, glare, A.S.A. Standards, luminaires, and other factors in the science of street lighting.

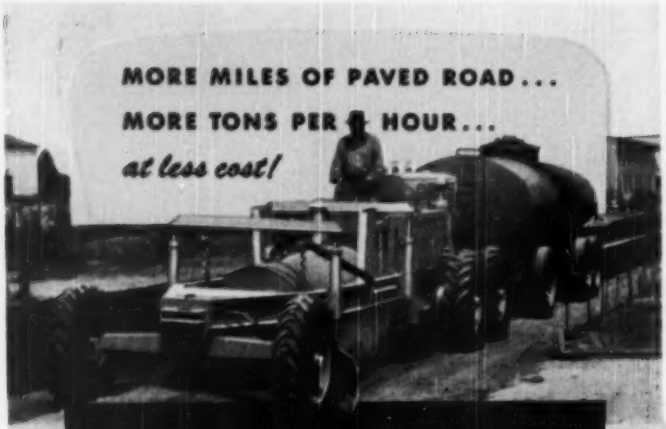
(Please Turn to Page 34 for More Literature)

Sealed Gasket!

Gasket is completely sealed and protected; at the bell face by a Monel Metal Seal Band; at the spigot by hard, vulcanized gasket tip, acting as a plug. Equalized pressure forces gasket into every crevice in the joint, sealing the leak at its source. Sturdy malleable iron Compression and Anchor Rings—shaped and pressure-tested before shipping. Large ¾" high-tensile steel bolts, cadmium plated. Speedy one-man installation cuts repair costs.

M. B. SKINNER CO., SOUTH BEND 21, INDIANA

SKINNER-SEAL BELL JOINT CLAMP



WOOD ROADMIXER

The Wood Roadmixer is your best answer to modern low cost mix-in-place construction. Here's why:

LESS MANPOWER—*this one man operated* traveling mixing plant takes low cost native materials and thoroughly mixes with emulsion, road oil or soil cement binders in one pass—windrowed and ready for spreading and compaction.

HIGH PRODUCTION, LOW COST—up to 350 tons mixed per hour at less than 7 cents a ton is not uncommon.

FULL JOB CONTROL—from start to finish. You control the rate of travel, the pressure of binder, the uniform pickup of material. With measured windrow and supervision of aggregate you're assured a surface of uniform quality every time!

SELF PROPELLED—to and from the job speeds of 15 MPH and working speeds up to 40 ft. per minute!

MORE THOROUGH MIXING—pug mill mixing drum provides 200 mixing passes in 45 seconds! Compare this to the 1 to 4 passes provided by other mixers.

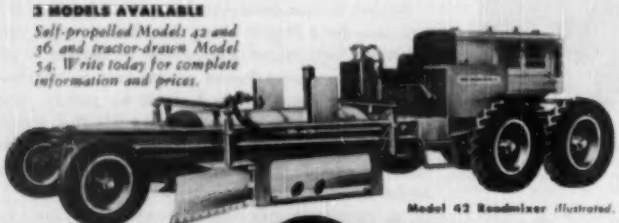
MANEUVERABLE as a motor patrol—uses pneumatic tires. Assures adequate traction in low bearing soils.

PLENTY OF ROADBUILDING APPLICATIONS—surfaces secondary roads, airfields, road shoulders, parking areas and detours. Subsurfaces major roads and airfields.

ACCEPTED AND RECOMMENDED by a majority of state highway departments, by the Civil Aeronautics Authority, U. S. Bureau of Public Roads, and the U. S. Army and Navy.

3 MODELS AVAILABLE

Self-propelled Models 42 and 36 and tractor-drawn Model 54. Write today for complete information and prices.



Model 42 Roadmixer *illustrated.*

ROADBUILDING EQUIPMENT

WOOD MANUFACTURING CO.

BOX 630 · 6900 TUJUNGA AVENUE · NORTH HOLLYWOOD, CALIF.

Get These Free

Use the Coupon on Page 27

Extra-Strong Concrete Cylinder Pipe

570 Steel and concrete work together to give superior resistance to internal and external stresses in American Concrete cylinder pipe. Economical first cost, plus ease of installation, sustained capacity, and trouble-free service all help to reduce the cost. For detailed information, write to the American Pipe and Construction Co., P. O. Box 3428, Terminal Annex, Los Angeles 54, Calif.

Money Saving Ideas for Your Curb, Gutter, or Sidewalk Job

571 You'll find jobs of this type illustrated in the new, 28-page Bulletin 2259, published by the Blaw-Knox Div. of Blaw-Knox Co., 2009 Farmers Bank Bldg., Pittsburgh 22, Pa. Write for information as to how you can save money and speed job completion with Blaw-Knox Steel forms.

Workhorses on Wheels

572 The VM-18 Buffalo-Springfield variable weight, 3-wheel street rollers can be adapted to meet compression requirements that would *normally* call for three fixed capacity models. For information about the seven 5- to 17-ton models, write to The Buffalo-Springfield Roller Co., Dept. H-8, Springfield, Ohio.

An Accounting Machine That Does Many Jobs

573 The Burroughs complete accounting machine can do almost any job in your office, and even an inexperienced operator can use it to keep books faster, more simply, more economically. Write to the Burroughs Adding Machine Co., Detroit 32, Mich., for the full story of "Streamlined Accounting."

Economize With Power Lawn Mowers

574 For efficient mowing, the Eclipse Lawn Mower Co., 1607 Railroad St., Prophetstown, Ill., makes mowers with power driven wheels, power driven reel, power driven sharpener, positive action clutch fingertip controls, and an easy-moving 4-cycle engine. Write for data about the various sizes and styles ranging from several walking models through a sulky assembly.

Mechanically Stoked Incinerators

575 Monohearth mechanically stoked incinerators provide dependability, low-cost and superior service for refuse disposal. Write to Nichols Engineering & Research Corp., 70 Pine St., New York 5, N. Y., for Bulletin No. 217B.

Those Who Park Must Pay the Meter

576 The Parkit-Lockit twin-parking meter collects more revenue because no "free" or unused time is shown on the meter dial. "Cruising for free time" is eliminated. For more information, write to The Parkit-Lockit Co., 207 Oakley Bldg., Cincinnati 9, Ohio.

Municipal Water Storage

577 P-DM elevated steel water tanks are handsome in appearance, efficient in performance, economical to use and maintain. Write to the Pittsburgh-Des Moines Steel Co., 3412 Neville Island, Pittsburgh 25, Pa., for the company's latest *Water Storage Brochure.*

(See Catalogs Listed on Page 36)

"Scram, you guys — I'm the only one equipped to handle this job!"

Copies FREE on Request—Send Today!

A TERRIFIC HIT!
BETTER MECHANICS PREFER
TOLEDO 1R
THREADER
FOR 1" to 2" PIPE
because
It's ACCURATE!
Perfect threads produced by separate Toledo Dies for each pipe size.
It's EASY THREADING!
Less friction due to famous Toledo receding die principle—small die segments with only a few cutting teeth backed by taper pins.
It's LOW COST!
Simple in design with one ratchet handle.

Do your next 1" to 2" pipe work with a Toledo 1R Threader—the tool that's "tops" with better mechanics! Similar to the famous No. 1 and No. 1A Toledos—but *simpler in design* with one ratchet handle and *low in cost!* A separate set of dies for each size of pipe —1", 1¼", 1½" and 2"—assures longer die life. Each set is hobbed for just the proper clearance. This means easier cutting, smoother, cleaner, more perfect threads and tighter pipe joints! Die change is quick and easy . . . or, many users prefer separate tool for each size. Durable . . . saves job-time . . . reduces costs! Ask your distributor for details and price . . . or send coupon.

RELY ON THE LEADER

TOLEDO

POWER PIPE MACHINES
POWER DRIVES
PIPE TOOLS

SEND COUPON

The Toledo Pipe Threading Machine Co.
Toledo, Ohio

Without obligation, send bulletin No. 650 and price on Toledo No. 1R Threaders, 1" to 2" pipe.

Name.....

Firm.....

Street.....

City.....State.....

Catalogs for You

Use the Coupon on Page 27

Year-'Round Loader For Cleaner Streets

578 The new Skyline "90" loader is a fast-moving piece of equipment for cleaning streets of snow, leaves, dirt, trash, sand, and gravel in any weather. It scoops, loads, digs, dozes—even handles garbage. For information, write to The Skyline Corp., 1521 McLean Blvd., Wichita, Kans.

Trade-In Your Old Pipe Locator

579 The new Pathfinder underground pipe locator is a powerful precision unit, economically priced. Locates position and depth of pipes, tees, valves, and buried tools. Write to the Pathfinder Co., 1726 Beverly Drive, Pasadena 7, Calif., and state model and year of your trade-in locator.

Soften Water in 8 Minutes

580 The Permutit Spiractor softens water up to 20 times faster than previous cold lime-soda methods. Streamlined, with no moving parts, the unit is easily operated. Write to The Permutit Co., Dept. AC-8, 330 West 42nd St., New York 18, N. Y.

Aerial Ladders for Every Fire-Fighting Need

581 Choose a "tailor-made" aerial ladder to fit your fire-fighting problem, from the wide range and variety of lengths available in Pirsch aerial ladders. Write to Peter Pirsch & Sons Co., Kenosha, Wis., for full information.

A New Way to Determine Water Hardness

582 Standard solutions for colorimetric Titration to determine the total hardness of water are offered in a unit package by LaMotte Chemical Products Co., Towson, Baltimore 4, Md. The package, containing detailed instructions, includes 500 cc of Titrating Solution, 50 cc of Buffer Solution with pipette, and 25 cc of indicator solution with pipette. Write for details.

Make Old Dams Better Than New

583 Many instances of repair, remodeling, and new construction of dams with Gunite are described and illustrated in Bulletin D2400, published by the Cement Gun Co., Gunite contractors, Allentown, Pa. A request on your letterhead will bring your free copy by early mail.

How to Use Salt For Ice Control

584 You get practical advice on how to use salt in your ice-control and snow-removal program, along with data on the use of salt to stabilize unimproved roads in *Rock Salt for Ice and Snow Control*, published by the Cayuga Rock Salt Co., Inc., Myers, N. Y. Write for your copy.

Long Reach on This Loader

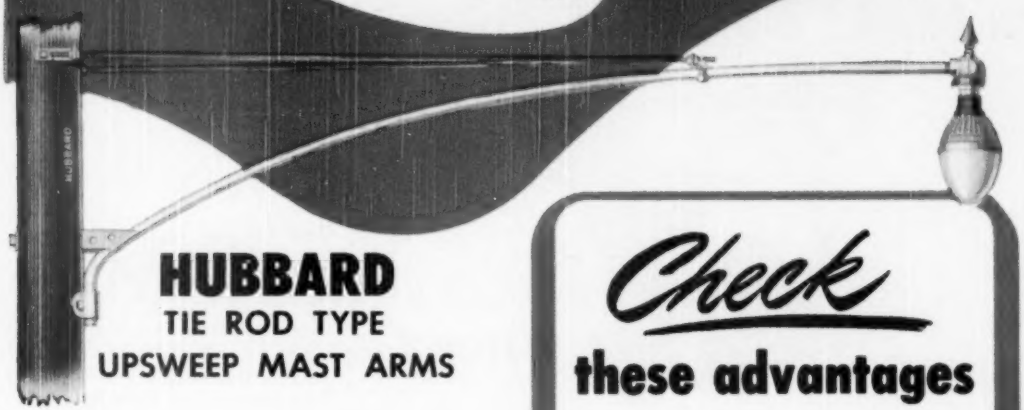
585 The Lull Shoveloader digs, rips, crowds, dumps—and reaches out ahead of the radiator shield to a distance of 5½ feet. The lifting height clearance with the bucket bottom horizontal is 9 feet 11 inches, and the peak lifting capacity is 3,750 pounds in the model 4-A and 5,000 pounds in the Model 4-B. Write the Lull Mfg. Co., 3612 E. 44th St., Minneapolis 6, Minn.

(For More Catalogs see Page 38)

beauty

efficiency

strength



HUBBARD
TIE ROD TYPE
UPSWEEP MAST ARMS

THE HUBBARD Tie Rod Mast Arm, with the famous Hubbard Keyhole design, is made in lengths of 8, 10, 12, and 14 feet, is easily installed, is well braced against side sway, and has the strength to support an extremely heavy vertical load. The ⅜-inch tie rods have 6-inches of thread at each end to allow for irregularities of mounting.

The 1¼-inch pipe will accommodate two-conductor No. 8, 6000 volt cable. Internal wiring is easy, for there are no angles, sharp bends, or obstructions.

Write for Literature

Check these advantages

- Exceptional strength . . . tie rods fastened to side of pole to minimize "sway."
- Design permits maximum elevation of luminaire.
- Meet all EEI-NEMA specifications.
- Graceful simplicity—light weight—low cost.
- "Free-flowing" internal wiring—beveled pipe ends—no sharp bends—no obstructions.

HUBBARD AND COMPANY

ESTABLISHED 1843

PITTSBURGH • CHICAGO • OAKLAND, CALIFORNIA

"Hang the Load on Hubbard Hardware!"

YOU CAN BE SURE OF UNIFORM

Quality

IN BRIGGS & STRATTON ENGINES

The most modern machines and tools for volume production with watch-like precision (many of them developed by Briggs & Stratton engineers), plus constant check and rigid inspection, are used to maintain uniform quality to meet the high exacting standards established by Briggs & Stratton — the result of the engineering and manufacturing experience gained in more than 32 years of continuous production, and the building of more than 4¾ million single-cylinder, 4-cycle, air-cooled gasoline engines.

BRIGGS & STRATTON CORPORATION
Milwaukee 1, Wis., U. S. A.

World Wide FACTORY SUPERVISED SERVICE

Famous Power FOR INDUSTRIAL CONSTRUCTION RAILROAD AND FARM EQUIPMENT

4 CYCLE
BRIGGS & STRATTON
GASOLINE ENGINES

In the automotive field Briggs & Stratton is the recognized leader and world's largest producer of locks, keys and related equipment.

Free Literature

Use the Coupon on Page 27

Shovel Loader Travels at Truck Speed

586 The rubber-tired Dempster Digger save you the expensive, unproductive costs of moving shovel loaders in excavation work. For fast, efficient, all-weather operation in difficult terrain, the Diggster is available with crawler-type action. Complete information and prices may be obtained by writing to Dempster Brothers, 880 Dempster Bldg., Knoxville 17, Tenn.

Locating Pipes and Cables

587 Small compact, light-to-carry, the new Detectron Model 505 locates, traces, and centers underground pipes and cables with speed and accuracy. For complete information write for Folder 8-R, to the Detectron Co., 5637 Cahuenga Blvd., North Hollywood, Calif.

Extra Protection With These Fences

588 All fittings, hinges, and locking devices on Realock fences have bolts on the inside, secure from tampering. For additional features and free estimate, write Wickwire Spencer Steel Div., 361 Delaware Ave., Buffalo 2, N. Y.

Heat Tar and Asphalt Quickly

589 Connery's Style W heating kettle heats tar and asphalt quickly and efficiently for road, street, and airport runway repairs; manufactured in 75-, 110-, 165-, and 210-gallon sizes. For Bulletin 87, write to Connery Construction Co., 4000 No. Second St., Philadelphia 40, Pa.

Attach Street Signs With Inexpensive Steel Straps

590 City and state highway departments vouch for the economy and worker convenience of A. J. Gerrard modern strapping methods for posting street signs to posts. For free demonstration and full information concerning their low-cost method, write to A. J. Gerrard & Co., 1952 Hawthorne Drive, Melrose Park (Chicago), Ill., for name of your nearest representative.

Permanently Visible Street Signs

591 The Cataphote Corp., Toledo, Ohio, manufactures legible, low-priced, attractive street signs which are embossed for permanent visibility. Write for descriptive catalog.

Dump Bodies

592 Burch dump bodies are rugged, designed for long, hard, profitable service. Unit-welded, virtually one-piece steel, the bodies are manufactured by the Burch Corp., Crestline, Ohio. Write for illustrated folder.

A Practical Solution for Your Insulated Piping Problems

593 When your piping system specifications call for high thermal efficiency plus low installation and maintenance costs, the answer is Ric-wil. Examples of this arise in district heating systems, power-plant piping and often in direct municipal building construction. Full engineering service insures system efficiency. For full technical information, write to The Ric-wil Co., Dept. 11-R, Cleveland 14, Ohio.

Design of Swimming Pools

594 Rules, regulations, specifications and accepted practices from authoritative sources are contained in a concise, easy-to-read catalog, "*Modern Swimming Pool Data and Design*", published by Refinite Corp., Refinite Bldg., Omaha, Neb. Write for your copy.

Built and Installed

BY PEOPLE WHO KNOW HOW

Let's be quite frank about what it takes to build a completely satisfactory, long-lasting Well Water System. As an almost entirely underground construction job, there must be a lot of know how; skill and experience gained over a long period of years in the building of thousands of Well Water Systems, otherwise many costly errors may be made.

In all the world there is no firm that equals Layne in skill; none that has had so much experience and none that is known to be so successful. Layne has built many successful systems where others have failed, proving that skill was the needed factor.

Layne constructs perhaps more big Well Water Systems than any other firm in the Nation. In addition to skill, Layne can offer the finest types of equipment, some of which they build for their exclusive use.

If you want helpful information on a water supply problem, you may call on Layne without obligation. For latest catalogs, bulletins, etc., address

LAYNE & BOWLER, INC.
General Offices, Memphis 8, Tenn.

NEW!—just off of the press—a bulletin on Layne Short Coupled Service Pumps, showing many diagrams of application for circulating and process pumping, lake and river intakes, drainage, line boosters and de-watering uses. Write for your copy today.

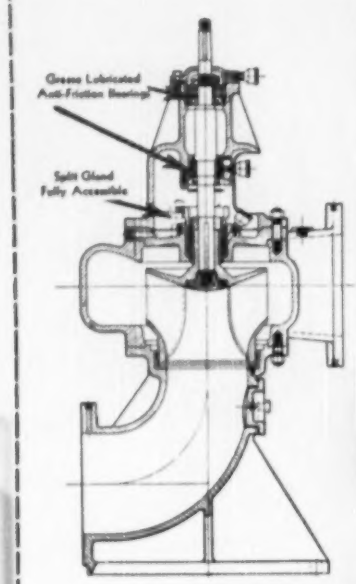
LAYNE ASSOCIATED COMPANIES

ASSOCIATED COMPANIES—Layne-Arkansas Co., Stuttgart, Ark. ★ Layne-Atlantic Co., Norfolk, Va. ★ Layne-Central Co., Memphis, Tenn. ★ Layne-Northern Co., Mishawaka, Ind. ★ Layne-Louisiana Co., Lake Charles, La. ★ Louisiana Well Co., Monroe, La. ★ Layne-New York Co., New York City ★ Layne-Northwest Co., Milwaukee, Wis. ★ Layne-Ohio Co., Columbus, Ohio ★ Layne-Pacific, Inc., Seattle, Wash. ★ The Layne-Texas Co., Ltd., Houston, Tex. ★ Layne-Western Co., Kansas City, Mo. ★ Layne-Minnesota Co., Minneapolis, Minn. ★ International Water Corp., Pittsburgh, Pa. ★ International Water Supply, Ltd., London, Ont. ★ Layne-Hispano Americana, S.A., Mexico, D. F. ★ General Filter Company, Ames, Iowa.

LAYNE
WELL WATER SYSTEMS
VERTICAL *Turbine* PUMPS

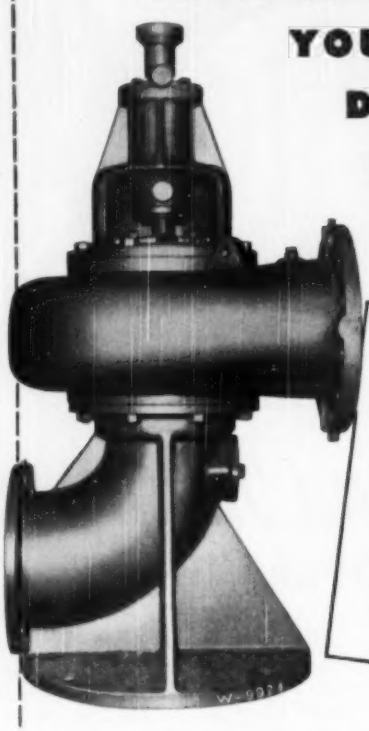
There's a Mixflo Pump

THAT WILL MEET YOUR SEWAGE DISPOSAL NEEDS— *Exactly!*

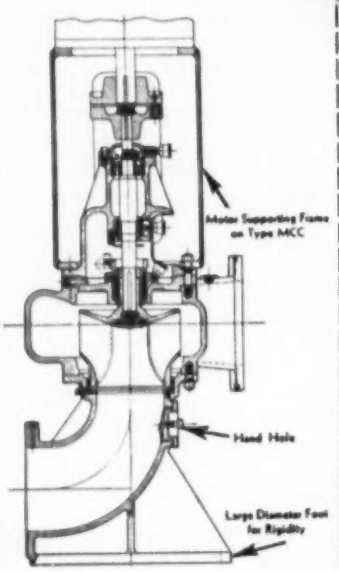


Type MCV
(Motor separately mounted)

Mixflo, Type MCV
with base elbow suction nozzle



Worthington Offers The Largest Selection Of Sizes And Types In A Single Line



Type MCC
(Motor close mounted)

Non-clogging two-vane closed impellers, grease-lubricated anti-friction bearings, easy accessibility to the split stuffing-box gland and impeller eye . . . are typical of the many Worthington Mixflo features assuring low-cost, trouble-free sewage pumping.

No Need To Guess!

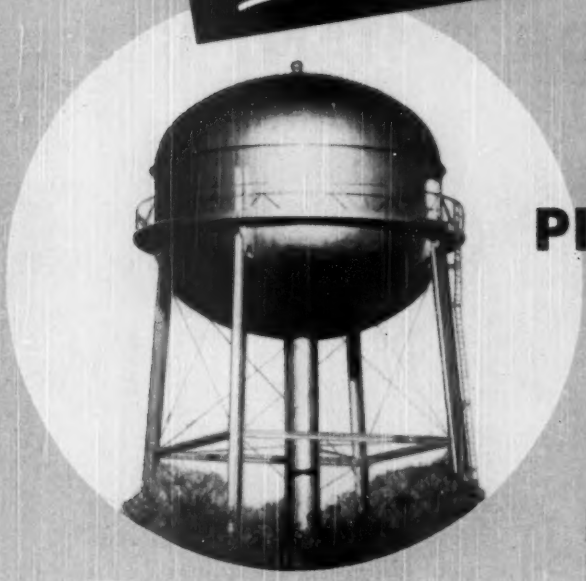
And along with performance-proved excellence in every mechanical and hydraulic detail, the Mixflo line offers you the widest choice of sizes and types in the field. So there's no need to compromise on a pump that's "about" right — you're sure to find a Mixflo that's *exactly right* for your particular requirements.

Bulletin W-317-B16 describes the various Mixflo types made in 10", 12" and 16" sizes. Worthington also builds Mixflos in sizes up to 84", with open or closed impellers and for horizontal or vertical drives. For more Mixflo facts that prove *there's more worth in Worthington*, contact our nearest District Office. Or write to *Worthington Pump and Machinery Corporation, Harrison, N. J.*

WORTHINGTON

W0.8

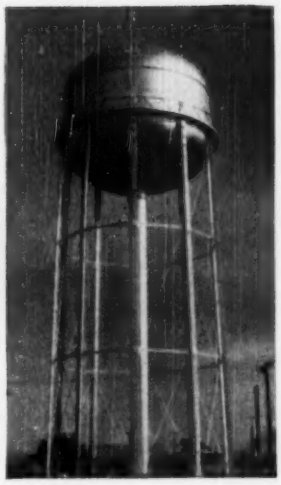
WHERE *Appearance* COMBINES WITH *Economy*

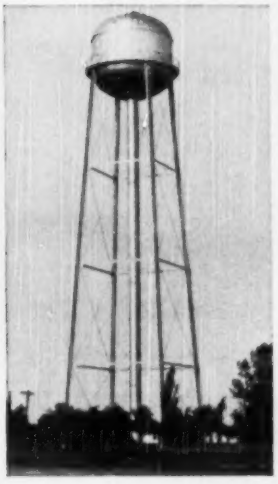


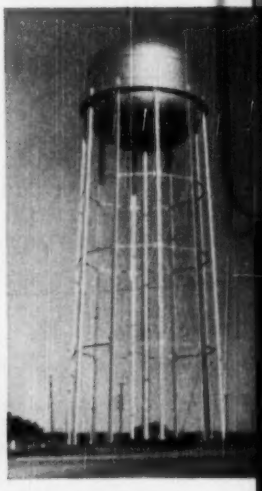
PITTSBURGH • DES MOINES

Double-Ellipsoidal *Elevated Steel Tanks*

Over a wide range of capacities up to a million gallons, the Pittsburgh-Des Moines Double-Ellipsoidal design offers low investment cost, excellent appearance and economical performance. It is one of the several P-DM Elevated Steel Tank types, meeting every water storage requirement.







Write for your free copy of our latest 24-page brochure, detailing many important aspects of modern water storage.

PITTSBURGH • DES MOINES STEEL CO.

Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

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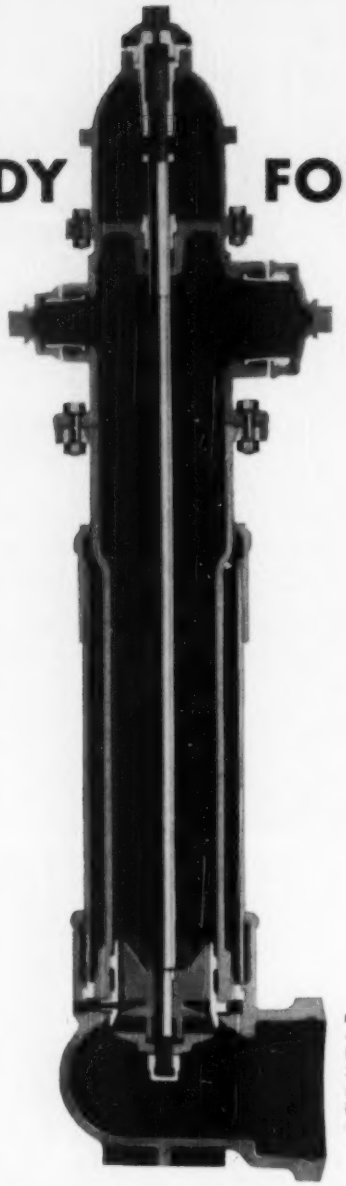
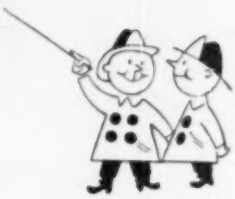
NEW YORK (7) . . . Room 915, 270 Broadway
CHICAGO (3), 1216 First National Bank Bldg.
DES MOINES (8), 913 Tuttle Street
DALLAS (1), 1217 Praetorian Bldg.
SEATTLE . . . . . 920 Lane Street
SANTA CLARA, CAL. . . . . 619 Alviso Road

READY FOR INSTANT USE





There's no place where rust or ice can form to interfere with the functioning of the Mathews Modernized Hydrant. The operating thread is above the water, separated from it by the stuffing box plate. This plate is cast integral with the nozzle section and, with the packing, provides a positively leakproof construction.

MATHEWS MODERNIZED HYDRANTS SET THE PACE: Easily maintained, because simple in construction • All working parts contained in replaceable barrel • Stuffing box cast integral with nozzle section • Head can be turned 360° • Replaceable head • Nozzle sections easily changed • Nozzle levels raised or lowered without excavating • Protection case of "Sand-Spun" cast iron for extra strength, toughness, elasticity • Operating thread only part to be lubricated • A modern barrel makes an old Mathews good as new Available in sizes 4" to 16" with mechanical joint pipe connections.

MATHEWS HYDRANTS

THE FIREMAN'S FRIEND

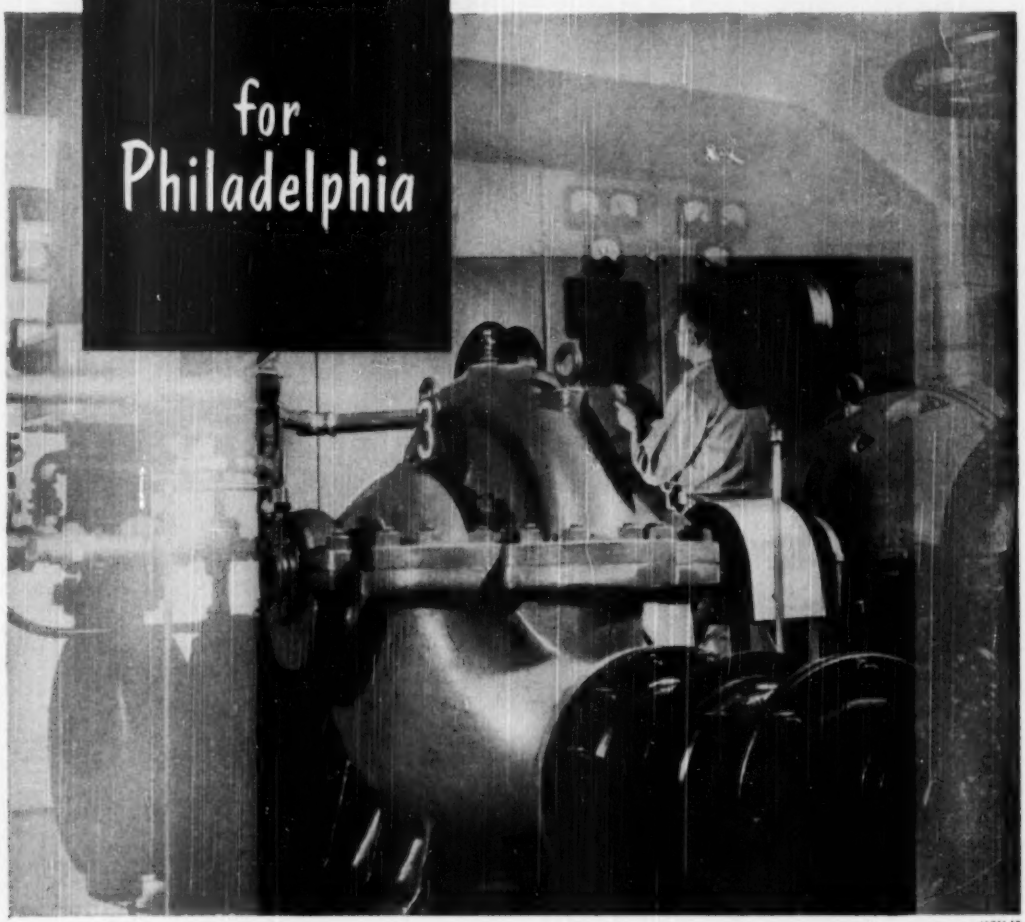
Made by R. D. Wood Company

Public Ledger Bldg., Independence Square, Phila. 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

FOUR MORE DE LAVALS* for Philadelphia

This De Laval pump is one of four recently installed at the Fox Chase Booster Station. It is one of 36 De Laval pumping units serving the City of Philadelphia.



WW-13

*80% of America's large cities use De Laval pumps.

Write Dept. 10-13-H

DE LAVAL STEAM TURBINE CO., TRENTON 2, N. J.

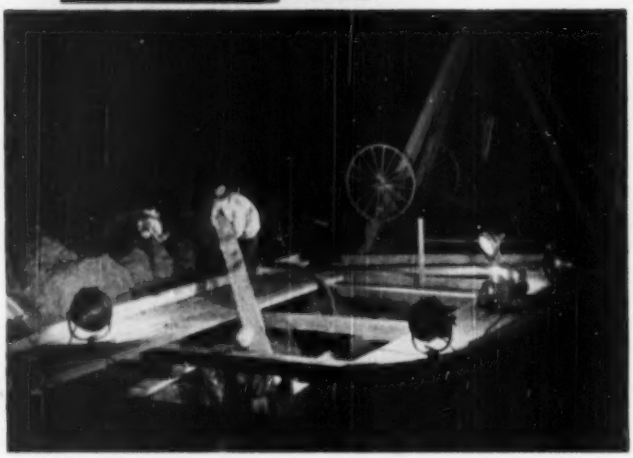
TURBINES • HELICAL GEARS • CENTRIFUGAL BLOWERS AND COMPRESSORS
CENTRIFUGAL PUMPS • WORM GEAR SPEED REDUCERS • IMO OIL PUMPS

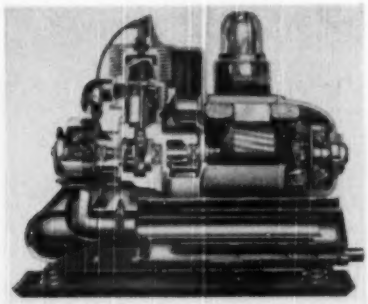
DE LAVAL

You Need All Three...You Get All Three

1. PERFORMANCE, 2. DEPENDABILITY, 3. SERVICE

HOMELITE *Carryable* GENERATOR





1. Performance. True, a Homelite Gasoline-Engine-Driven Generator is light enough for one man to pick up and carry but its performance is big enough to operate any electric tools or brilliant floodlights for night work. In fact, it gives you power *plus* . . . power plus a large overload capacity . . . power that isn't sapped by long dangerous cables. Easy to get on the job; quick to start at all times, never bothered by extreme temperatures, a Homelite is always ready with electric power in any emergency. It will save time and money for you on all jobs. Ask for a free demonstration and see for yourself.

2. Dependability. For more than 25 years, Homelite engineers have specialized in building carryable gasoline-engine-driven units. Their experience in building close to three hundred thousand of these units has been responsible for the simplicity of design and precision construction with finest materials that insure long-haul dependability and lowest maintenance costs.

3. Service. A Homelite seldom needs service, but when it does, there's a trained Homelite service man near you . . . a man who will drive his truck right out to your job and put your Homelite in perfect operating condition. This prompt, competent service is a great money saving factor for those who want to get continuous production out of their power tools.

STICK TO THE RULE OF THREE 1. Performance 2. Dependability 3. Service, and you'll always stick to a Homelite

PERFORMANCE DEPENDABILITY SERVICE

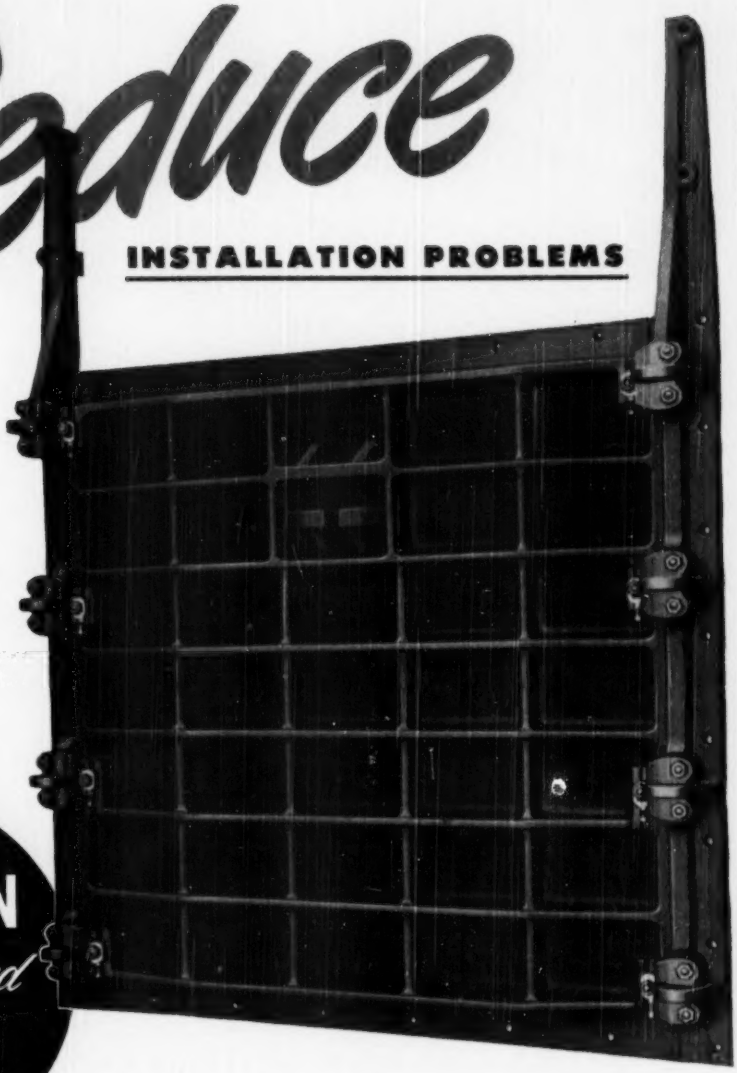
HOMELITE CORPORATION

109 RIVERDALE AVENUE, PORT CHESTER, NEW YORK

MANUFACTURERS OF HOMELITE CARRYABLE PUMPS • GENERATORS • BLOWERS • CHAIN SAWS • PAVING BREAKERS

Reduce

INSTALLATION PROBLEMS



NO MATCH-MARKING IN THE FIELD

WITH **CHAPMAN** *Standardized* **SLUICE GATES**

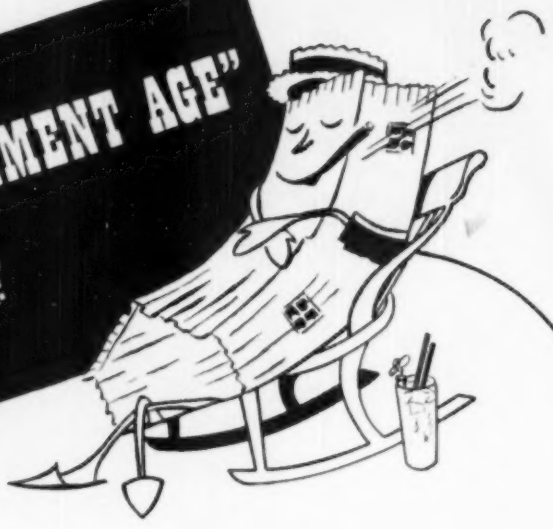
You'll save lots of installation time with these Chapman *standardized* sluice gates. Each one is designed with interchangeable stems and couplings so that match-marking in the field is unnecessary.

What's more, Chapman Sluice Gates may be obtained with any type of operating control—manual, hydraulic cylinder, or motor unit. For additional information send for your copy of Chapman's Sluice Gate Handbook.

THE CHAPMAN VALVE MFG. CO.

INDIAN ORCHARD, MASSACHUSETTS

what's the "RETIREMENT AGE" for your buildings?



Not all structures have to be "retired" just because conditions change. Versatile Armco STEELOX Buildings can be quickly and economically altered whenever necessary.

With STEELOX, just loosening a few bolts permits moving doors, windows and partitions. Your building can be extended with standard parts that are readily obtainable. Or the entire structure can be dismantled and re-erected on a new foundation. There's no loss of material or efficiency.

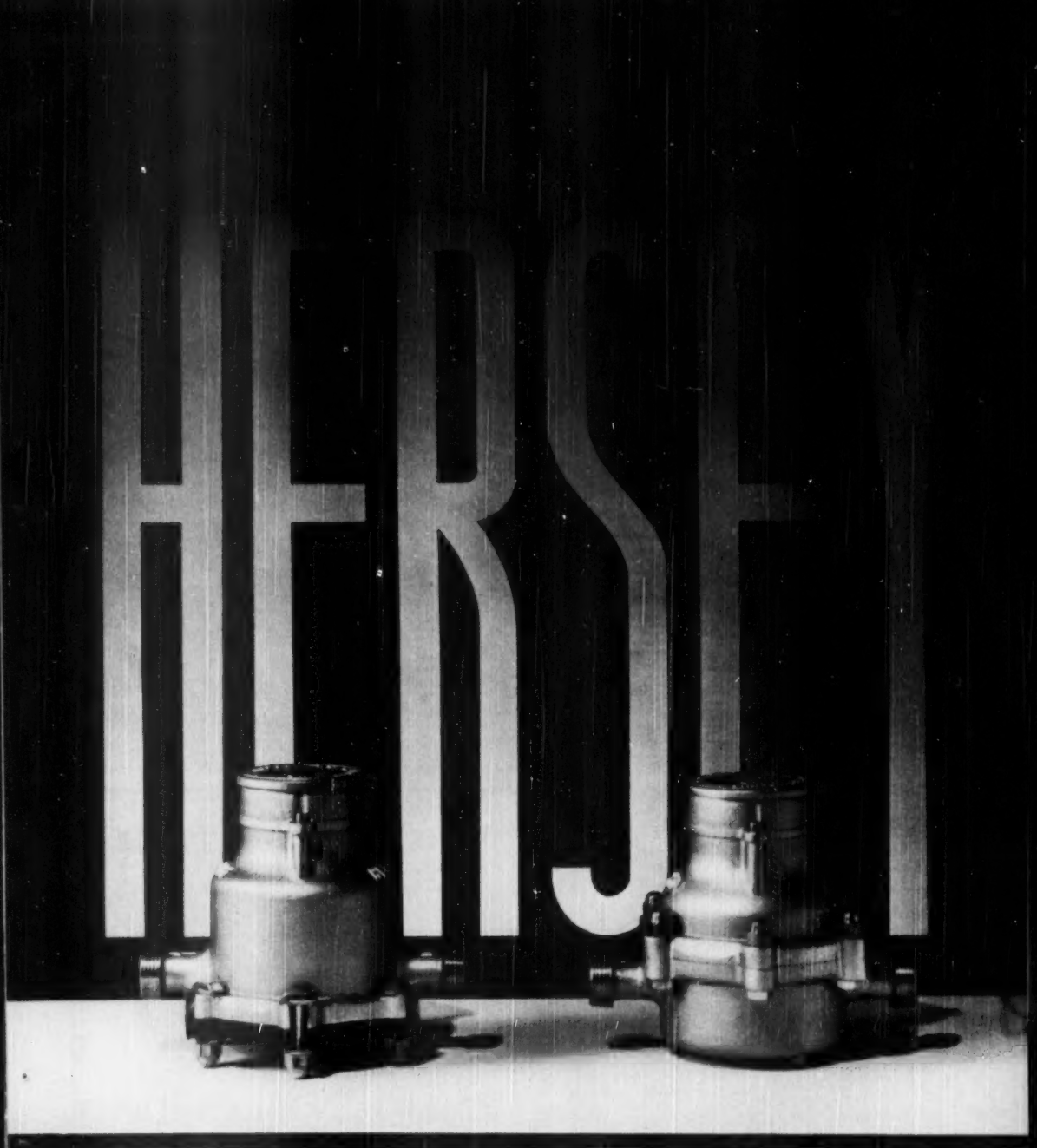
Maintenance costs are low with STEELOX too. There is nothing to go wrong—nothing to crack, warp or rot. Upkeep is generally limited to an occasional painting. Even here you save as the special Armco ZINCGRIP-PAINTGRIP Steel takes paint without pretreatment and the paint lasts longer.

Erecting an Armco STEELOX Building is a simple matter for a small unskilled crew. Individual sections go into place quickly to provide both structural support and exterior covering. The job is done in a matter of hours.

You'll like Armco STEELOX Buildings for offices, shops, garages and wherever else you need dependable, low-cost shelter. Write us for prices and descriptive literature. Armco Drainage & Metal Products, Inc., 5770 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation.

ARMCO STEELOX BUILDINGS

ARMCO



"It's the quality and universal acceptance of a product that make great names in American industry"

The Quality and Acceptance of

HERSEY WATER METERS

by experienced water works officials have made the name HERSEY a leader in the water works field

HERSEY MANUFACTURING COMPANY

SOUTH BOSTON, MASS.

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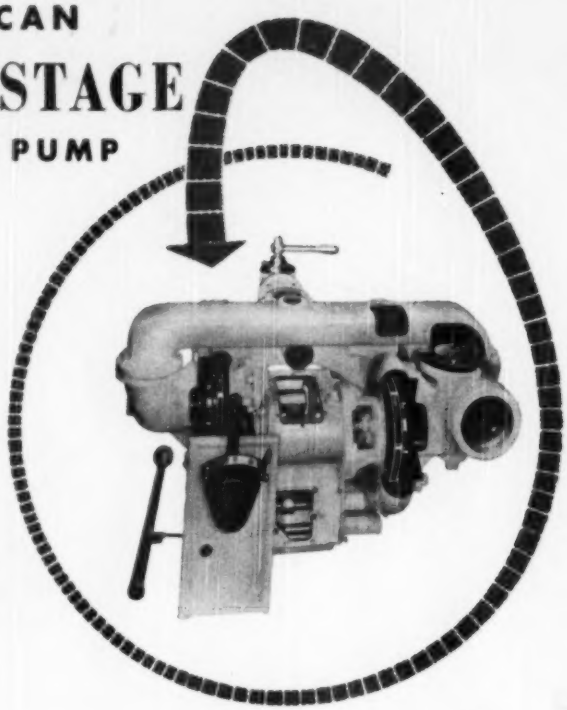
BARTON-AMERICAN

DUPLEX-MULTISTAGE

CENTRIFUGAL FIRE PUMP

The Barton-American Duplex-Multistage Fire Pump is the only two stage fire pump with three operating characteristics. Two independent pumps driven by individual gear trains — breakdown of one still leaves one in operation. No other pump is as adapted to present day fire fighting requirements. Possible to operate high pressure fog while regular pressure lines are operating at the same time. No other pump so simple — no other pump so dependable. Available for pressures as high as 850 lbs.



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AMERICAN-MARSH PUMPS

BATTLE CREEK MICHIGAN

Pumps And Only Pumps Since 1873

Newly Improved OK CHAMPION POWER SEWER CLEANER

DON'T LOSE Sewer Capacity

Clear your sewer lines regularly. Keep up full carrying capacity and you save money—in lower maintenance cost and avoiding costly backwash. Order OK Champion Power Sewer Cleaner equipment and your men remove roots, dirt and other obstructions from any storm or sanitary sewer in ONE operation. All men work above street level.

OK Champion cleaners are regularly clearing sewers all over the world. New improvements make them better than ever. Send for literature.

CHAMPION CORPORATION
Hammond, Indiana

GET FULL FACTS NOW!

CHAMPION CORPORATION, 4716 Sheffield Ave., Hammond, Ind.
Please send information on how the Improved OK Champion Power Sewer Cleaner cuts sewer cleaning costs.

NAME.....TITLE.....

ADDRESS.....

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LIQUID METERS

All Sizes All Types

Worthington-Gamon Meter Co.

Subsidiary

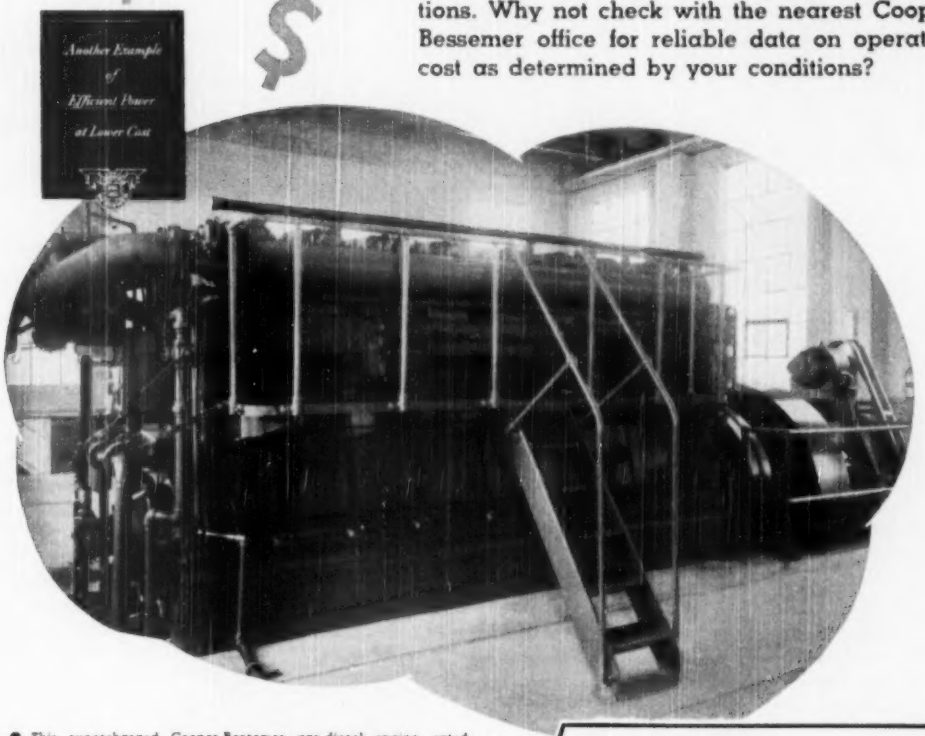
WORTHINGTON PUMP & MACHINERY CORP.
296 South Street Newark 5, New Jersey

Hominy saves $1148 a month on fuel with Cooper-Bessemer gas-diesel

Hominy, Oklahoma, is typical of hundreds of cities in a position to cut way down on the cost of producing electric power. Here, a new-type Cooper-Bessemer gas-diesel, running largely on gas fuel, saves $1,148 a month compared with oil operation when using fuel oil at 10c a gallon.

Also significant is the fact that this saving is based on no more than 40% load! Cooper-Bessemer's latest gas-diesel development makes these engines more efficient even at partial loads than any other known engine of any type.

If gas is available to you, even in varying volumn, chances are you can make big savings with a Cooper-Bessemer gas-diesel. These dependable, long-lived engines are thoroughly proved in hundreds of money-saving installations. Why not check with the nearest Cooper-Bessemer office for reliable data on operating cost as determined by your conditions?



● This supercharged Cooper-Bessemer gas-diesel engine, rated 985 hp. drives a 680 kw generator in the Municipal Electric Plant of the City of Hominy, Oklahoma. Unit was installed late last year and will quickly pay for itself in fuel cost savings.

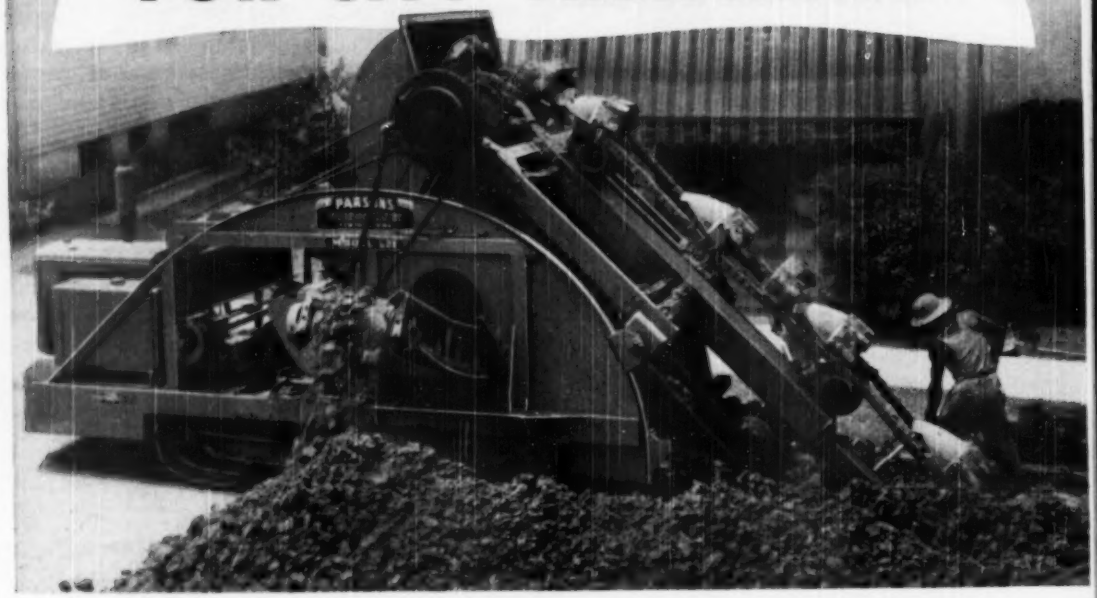
The Cooper-Bessemer Corporation

MOUNT VERNON, OHIO — GROVE CITY, PENNA.

New York City Washington, D. C. Bradford, Pa. Chicago, Ill. San Francisco, Calif. Houston, Dallas, Greggton, Pampa and Odessa, Texas Seattle, Wash. Tulsa, Okla. Shreveport, La. St. Louis, Mo. Los Angeles, Calif. Caracas, Venezuela Gloucester, Mass. Calmes Engineering Co., New Orleans, La.

Extra rugged • highly maneuverable • and fast

FOR CITY TRENCHING



PARSONS HEAVY-DUTY 221 TRENCHLINER*

For excavating along curbs, pole lines, next to buildings in streets and narrow alleys, you'll find this Parsons 221 Trenchliner the all-around answer to your special problems of city trenching. It has the heavy-duty digging strength of a power shovel, plus all the speed and agility needed for trenching.

Husky, ladder-type digging boom shifts across full width of machine . . . lets the 221 cut within 10" of side obstructions. Telescopic boom digs up to 8½' deep . . . 16" to 36" wide . . . has automatic safety clutch to protect main machinery against obstructions and shock loads. 30 digging speeds from 5" to 12' per minute assure maximum trench production at every digging level, and in all kinds of materials. Arc-type spoil conveyor dumps on either side . . . arc provides plenty of clearance for truck loading, or gives you low-level drop for close-to-trench deposit. Machine maneuvers like a crawler tractor . . . quickly pivots completely around in its own length.

You get steady, trouble-free performance, because every assembly, from the 221's tractor type crawlers and all-welded arched frame, to its high carbon steel digging buckets is extra heavy-duty in every detail. Power is delivered to the bucket line on all anti-friction bearings. Take-off shafts are short, large in diameter, rigidly held in alignment in heavy gear case. All gears are fully enclosed, run in continuous oil bath. Result: less down time, more work time . . . more miles of trench dug faster, and at lower cost for you with Parsons 221 Trenchliner.

Contact your Parsons Distributor for complete facts and figures on the 221. Ask, too, about the 3 other sizes of crawler Trenchliners, and new, rubber-tired, utility Trenchmobile in the modern Parsons line.

KOEHRING PRODUCT

PARSONS COMPANY
NEWTON, IOWA

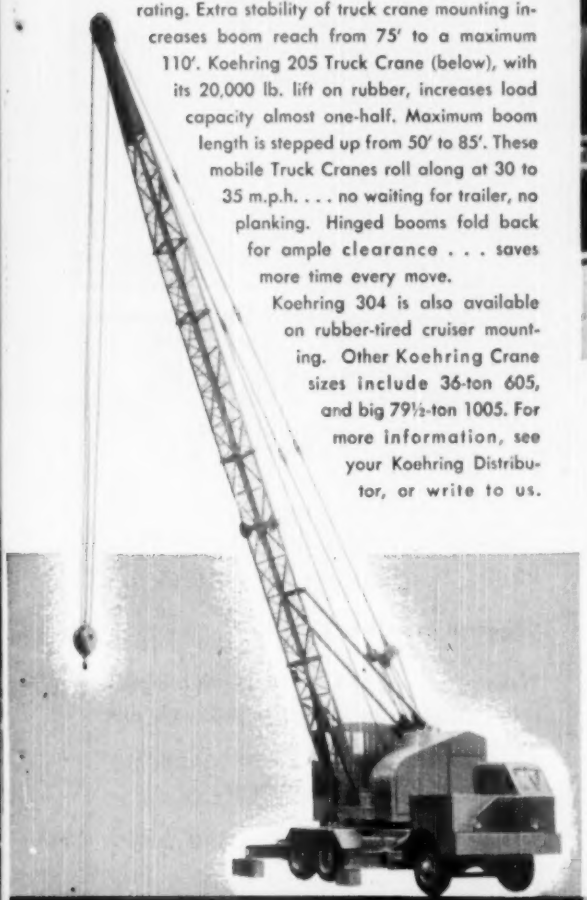
Koehring Subsidiary

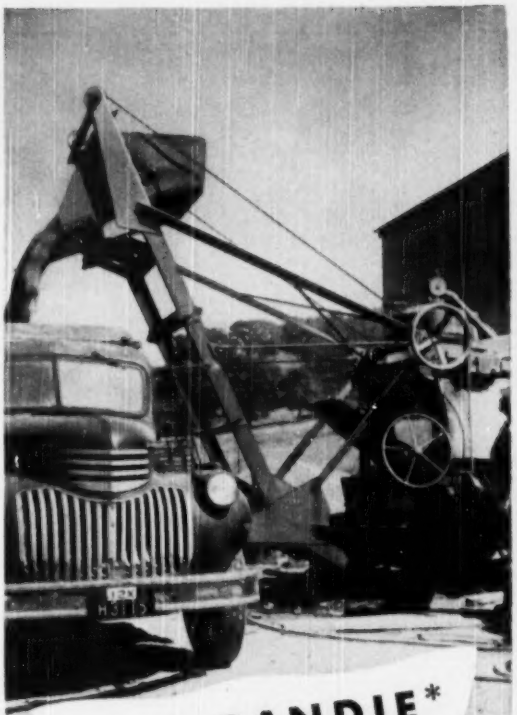
INCREASE Lift Capacity

. . . . . WITH KOEHRING TRUCK CRANES . . . . . .

On scattered lifting jobs requiring frequent moves, you can get extra load capacities, reach and extra speed with Koehring Truck Cranes. Model 304 safely lifts 50,000 lbs. . . . 11.1 tons more than its crawler rating. Extra stability of truck crane mounting increases boom reach from 75′ to a maximum 110′. Koehring 205 Truck Crane (below), with its 20,000 lb. lift on rubber, increases load capacity almost one-half. Maximum boom length is stepped up from 50′ to 85′. These mobile Truck Cranes roll along at 30 to 35 m.p.h. . . . no waiting for trailer, no planking. Hinged booms fold back for ample clearance . . . saves more time every move.

Koehring 304 is also available on rubber-tired cruiser mounting. Other Koehring Crane sizes include 36-ton 605, and big 79½-ton 1005. For more information, see your Koehring Distributor, or write to us.





16-S DANDIE* with Tower Loader

. . . . DISCHARGES CONCRETE AT 9′ HEIGHT

Now you can discharge concrete batches into trucks, hoppers, or direct to forms above ground level, with handy new Kwik-Mix Tower Loader attachment. Saves time and cost of overhead mixer installations on many jobs. Available for both the Kwik-Mix 11-S and 16-S Dandie Mixers . . . has a maximum discharge height of 9′ 2″.

Big bucket holds full mixer batch . . . is raised by power . . . dumps automatically at top of tower. Bucket travel and discharge are completed while next batch is being mixed . . . no delay to mixer production. Its single lever is controlled by mixer operator . . . mixer engine supplies the power.

Doesn't interfere with the mobility of 11-S and 16-S Dandies . . . is quickly, easily collapsed for ample travel clearance. Get all the facts on this Tower Loader from your Kwik-Mix Distributor, or write us TODAY. Also ask about the complete Kwik-Mix line of concrete, bituminous and plaster-mortar mixers.

KOEHRING
COMPANY • MILWAUKEE 10, WIS.
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Specify **386**
12 to 18 oz. serges
Tropical weight for shirtings • 18 oz. whipcord for breeches
•
Also 20 and 30 oz. beavers and other standard fabrics

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FAIRBANKS-MORSE
GENERATING SETS

You can have power wherever you need it — and as much as you need — when you take along a Fairbanks-Morse portable generating set.

Fairbanks-Morse generators are available in capacities from 600 to 35,000 watts — A.C., D.C., or A.C.-D.C., according to type.

They are widely used in resorts, cabins, sawmills, farms, radio stations, camps, ranches and many other industrial and commercial enterprises.

For complete information about a generator to meet your needs, see your local Fairbanks-Morse dealer, or mail the coupon.

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a name worth remembering

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Please send full details about your power generating sets for portable or permanent service.
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FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

Prompt Shipment

Inquiries and orders solicited

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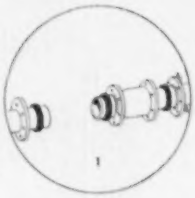
P. O. Box No. 307 **Phone: 193**

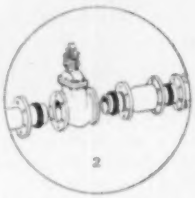
If you have to install a valve in a hurry--with an eye toward economy....

...specify EDDY
Cutting-in Valves and Sleeves

After excavation and removal of section of pipe, glands and gaskets are placed on pipe and sleeve. The sleeve is then pushed into position.



Valve is placed between pipe-end and sleeve, and pushed home against pipe. Sleeve is seated onto bell of valve.



Glands, gaskets, bolts and nuts are then assembled at the 3 joints and tightened, using a ratchet wrench only.

Since 1849 EDDY For Long Service

EDDY
VALVE COMPANY
A Subsidiary of James B. Clow & Sons
WATERFORD, NEW YORK

Starting with step "1" above, two men with a ratchet wrench can install an Eddy Mechanical Joint Cutting-in Valve and Sleeve on an existing pipeline in less than 25 minutes. Every joint is bottle-tight under pressure, without caulking or lead-melting. Thus, the work can be done in any kind of weather, or in a flooded trench. Valves meet AWWA specifications; are available in 3 to 12" sizes for sand-cast and centrifugally-cast iron water pipe. Stock up now, for speedy installations.

"... speed up that job, Bill — use the HYDRAUGER*"

IT'S A FACT

... on short runs (up to 200') underground pipe can be laid faster and at much less cost in Hydrauger BORED HOLES! (Bore diameters 2" through 24".)

operates by compressed air ... needs only a 2' 6" by 7' 6" trench.

HYDRAUGER CORP., Ltd.
681 Market Street
San Francisco 5, Calif.

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HYDRAUGER*

Earth Boring Tool

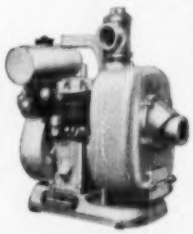
*Reg. U. S. Pat. Off.

HY-21C

Jaeger "new standard" Model 75 sells at price of old, small Model 60 but does a lot more work.

BEST BUY in AIR COMPRESSORS

Operates a heavy concrete breaker or sheeting driver at full 90 lbs. pressure, which no 60 ft. unit can do, runs 2 clay diggers instead of one, or 3 backfill tampers instead of 2—all at full pressure. Weighs no more than old 60, uses no more fuel unless more air is called for. Send for Catalog.



Pump 5100 gallons an hour with famous Jaeger "Bantam." Carry it in one hand, ready to prime and pump as soon as you start the engine. Aluminum alloy with replaceable liner. Electric powered if desired.

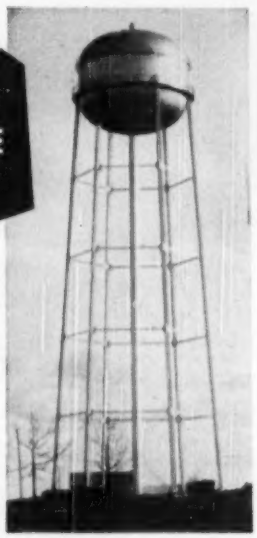
Sold, rented in 130 cities.

Send for Catalog

THE JAEGER MACHINE COMPANY

Columbus 16, Ohio

DEPENDABLE WATER SERVICE



● For almost a century Cole elevated tanks have provided a dependable water supply for mills and communities. Cole quality is assured by careful, experienced designing and watchful supervision from blueprint to finished tank.

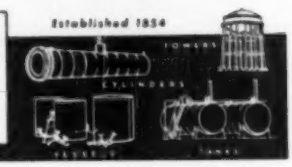
Send us your inquiries for tanks from 5,000 to 2,000,000 gallons — stating capacity, height to bottom, and location. Write for latest Cole catalog—"Tank Talk."

R.D. COLE

MANUFACTURING CO.

NEWNAN, GA.

Established 1854



HAND STORAGE BATTERIES

EXTRA HEAVY-DUTY*

For Police Radio Cars, Sanitation Trucks Snow Plows, Sweepers, Emergency Trucks, Ambulance and Fire Apparatus.

*Heavy, ultra low antimony plate frames . . . hand-pasted, tank-formed . . . heavy glass mats . . . acid and heat resisting microporous rubber separators . . . splash decks . . . double weight cell covers . . . highest grade hard rubber containers.

Prices start $26.50 (Group 22,H)

Hand Laboratory, Nyack, N. Y.

FOUNDED 1930

HOW Salisbury, Maryland USES G-E 2-WAY RADIO

The G-E 25-50 megacycle equipment in vehicles of the Salisbury Police Department continues to deliver superior service after more than 5 years of operation. Chief W. J. Chatham is particularly pleased with low maintenance cost of General Electric units.

This community solved all of its mobile communication problems with one answer—General Electric! Vehicles and fixed stations of the police department, fire department, public service company, rural electric cooperative, and the city's leading cab company are equipped with G-E 2-way radio systems performance-engineered for each job.

Adjacent channel operation, sharp and clear and free from annoying interference . . . day and night all-weather dependability . . . well-constructed, easy to service units . . . complete systems reasonably priced—these are the things to look for when your community needs radio communication. General Electric engineers are at your service. Let them study your communication needs now. No obligation, of course. Call the G-E office nearest you, or write: *General Electric Company, Section* 1090, Electronics Park, Syracuse, New York.

You can put your confidence in—

GENERAL ELECTRIC

General Electric Company—Section 1090
Electronics Park
Syracuse, New York

Send me complete information on G-E Radio Communication Systems.

NAME.....

TITLE.....

ADDRESS.....

CITY.....STATE.....

CarWood

in a class by itself

the leader in the field

performance never equalled

continuous improvement maintains its leadership

LOAD-PACKER

REFUSE COLLECTION UNIT

The Load-Packer was the original completely enclosed refuse collection unit with compressing action. From the start it has been the leader in the field.

Continuous improvement over the years has maintained this leadership. The Load-Packer is far out in front. Its performance has never been equalled.

The Load-Packer has an exceptionally low center of gravity—twin cylinder underbody hydraulic hoist . . . independently powered hydraulic tailgate unit . . . a surplus of hydraulic power for compression. Only Gar Wood builds the Load-Packer. See how it will reduce your collection costs and improve sanitation. Write for new bulletin.

GAR WOOD INDUSTRIES

GAR WOOD INDUSTRIES, INC.
WAYNE DIVISION, WAYNE, MICH., U.S.A.

PRODUCTS—HOISTS • DUMP BODIES • WINCHES • CRANES
TRACTOR EQUIPMENT • DITCHERS • SHOVELS
FINEGRADERS • SPREADERS • TRUCK PATROLS

GAR WOOD INDUSTRIES, INC.
Wayne Division, Wayne, Mich.

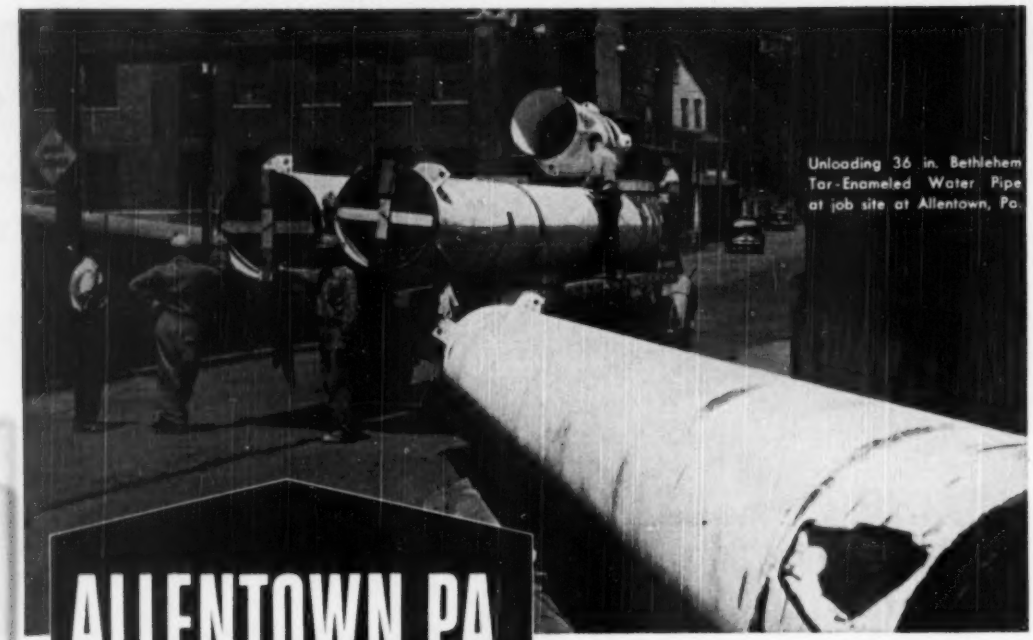
Please send me Bulletin M-60 telling how Gar Wood Load-Packers will help me reduce refuse collection costs and improve public health.

Name_____

Title_____

Address_____

City_____ State_____



Unloading 36 in. Bethlehem Tar-Enameled Water Pipe at job site at Allentown, Pa.

ALLENTOWN, PA. INSTALLS NEW WATER MAIN

In order to enlarge its water-distribution system, the City of Allentown, Pa., is installing a new water supply line from its Lawrence St. filtration plant to an existing main. The new line is approximately 3 miles long, and consists of about 7000 ft of 36 in., and 9500 ft of 30 in. Bethlehem Tar-Enameled Water Pipe. The 36 in. pipe is furnished in 40-ft lengths. Dresser Couplings are used in making the field joints. The installation is being handled by the Construction Corporation of Pennsylvania, Philadelphia.

Bethlehem Tar-Enameled Water Pipe is ideal steel pipe for water lines because of its ease of installation, long life, and resistance to incrustation and corrosion. The pipe is carefully made from heavy plate steel, and is then machine-welded, after which it is coated uniformly with a smooth layer of protective tar enamel, in accordance with American Water Works Association Code.

Bethlehem Tar-Enameled Water Pipe can be installed quickly. Obstructions can be by-passed with little difficulty because elbows can be made to any degree of deflection in the line. This heavy-duty pipe comes in sizes from 22 in. up to the largest permitted by shipping clearances, and in lengths up to and including 40 ft. When diameters are too large for convenient handling, it can be shipped knocked down for assembly in the field.

Before installing your next water main, make it a point to investigate Bethlehem Tar-Enameled Water Pipe. Complete details are available from the nearest Bethlehem sales office. Or write to us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Fabricated Steel Construction

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM *Tar-Enameled* WATER PIPE

Bi-Lateral

PROUDLY INVITES YOU TO INSPECT

DURAFLEX

the hose that opens a new era in fire-fighting efficiency

Duraflex marks another long stride in the march of progress started by Bi-Lateral 42 years ago.

On display at all conventions—or ask any Bi-Lateral representative.

Robert D. Baird, *President*

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CHICAGO 6, ILLINOIS

Bi-Lateral
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FIRE HOSE

ARKANSAS, FORT SMITH
Interstate Fire Equipment Company
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Bi-Lateral Fire Hose Company
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3780 Wilshire Blvd., Rm. 310

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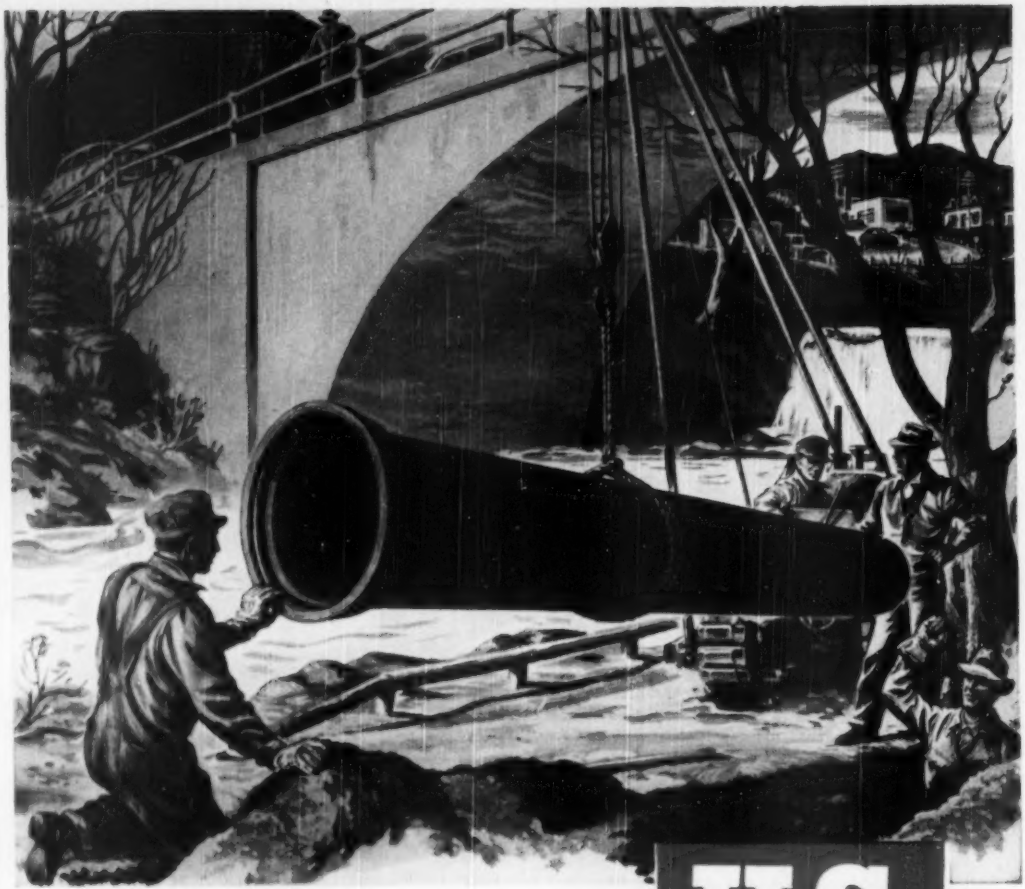


Painted for U. S. Pipe & Foundry Co. by Paul Laune

U.S. cast iron PIPE

FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE

IMAGINE that you have just heard about cast iron pipe for the first time! Would you not be eager to buy some? For what other pipe material used in constructing underground mains is as inexpensive to maintain? What other pipe material has a proved service record of over 100 years in city streets? What other pipe material has all the strength factors of long life that should be required of pipe to be laid in city streets? Our product has lived up to the best traditions of cast iron pressure pipe for 51 years. **United States Pipe and Foundry Co., General Offices: Burlington, New Jersey, Plants and Sales Offices Throughout U. S. A.**

ADJACENT CHANNEL OPERATION

New "Uni-Channel" Top performer in low-cost 2 way radio

UNI-CHANNEL SENSICON DISPATCHER — DASH MOUNT OR TRUNK MOUNT (Not Illustrated)

with the marvelous Sensicon circuit...

...for *permanent selectivity*—and 8 other Motorola improvements—Count on Uni-Channel through any routine or emergency to handle *whole* messages in heavy adjacent channel traffic (±35 Kc. at 100 db. down, and ±15 Kc. at 6 db. down)—your practical proof of superior *Motorola* equipment!

A marvel of mechanical convenience in one compact and accessible package. Just 4 screws install it in any vehicle. Or, as an emergency station, simply connect antenna and power. Investigate Uni-Channel before buying.

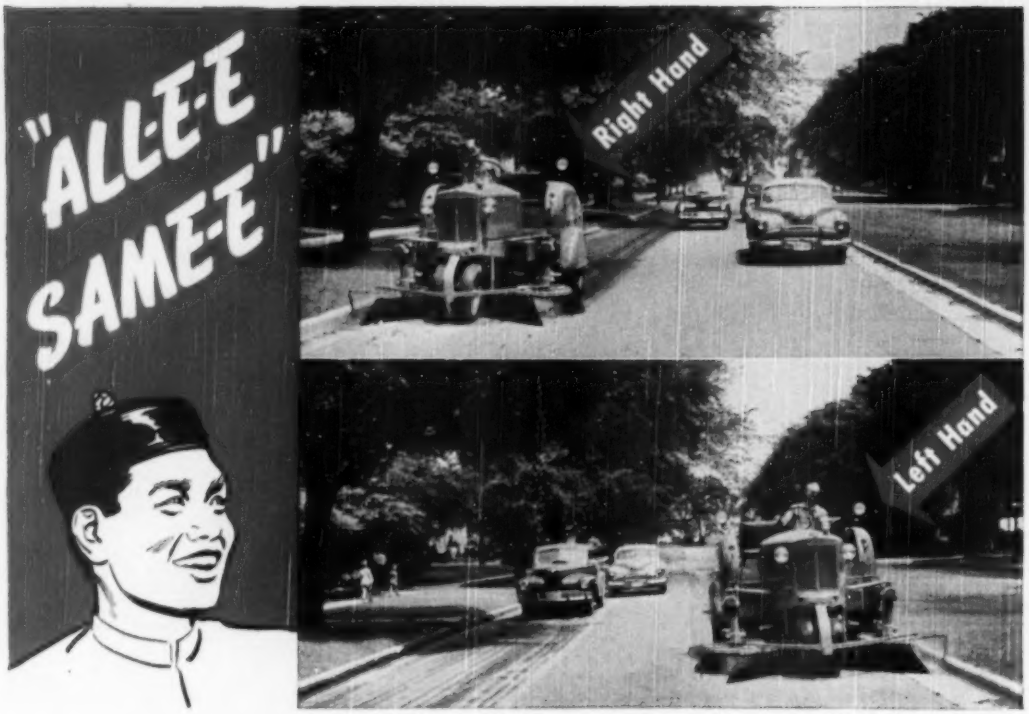
FM 2-WAY RADIO

BY THE WORLD LEADERS

BACKED BY 20 YEARS RESEARCH, EXPERIENCE, AND SPECIALIZATION IN MOBILE RADIO

Motorola

COMMUNICATIONS DIVISION 4545 AUGUSTA BLVD., CHICAGO, in Canada: Rogers Majestic, Ltd., Toronto



Separated Pavement — One-Way Streets — Island Areas

The Double Gutter Broom Model "40" IS YOUR BEST BUY!

Best, Because there are no "blind spots." The operator has a perfect view of the gutter broom and the entire street . . . works with maximum efficiency and safety.

Best, Because with a full width seat up front, special driving and steering controls are not needed . . . the operator simply slides over on the seat a bit.

Best, Because the Model "40" can be purchased with a single gutter broom, and a second added later, as the need arises, at very little cost.

Fast, clean-sweeping, superbly maneuverable, the Model "40" answers the problems of state and municipal cleanliness in parks, streets, alleys, and on highways. From end to end it's built to do a cleaner, better job than any sweeper ever manufactured.

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U.S.A.

BUILDERS OF ROAD MACHINERY
Austin Western
SINCE 1859

MAKING LITTLE ONES OUT OF BIG ONES

"61"

Designed for fast, economical production where extreme accuracy in grading to size is not required. Compact, lightweight and readily portable. Simple design and sturdy construction keep operating and maintenance costs at a minimum.

The AUSTIN-WESTERN LINE includes Jaw Crushers and Roll Crushers in a wide range of sizes; plus matching screens, elevators, conveyors and bins. Exclusive features increase output, assure constant operation and reduce maintenance costs. Skilled engineering characterizes each and every Austin-Western crushing, screening and washing plant, which is tailor-made to a particular production problem. We would welcome the opportunity to discuss yours.

AUSTIN-WESTERN COMPANY

Aurora, Illinois, U.S.A.

"201"

You'll like its READY PORTABILITY . . . CHOICE OF FEED . . . HIGH OUTPUT. The "201" is of a size and weight that can be transported over most highways without a special permit . . .

. . . may be had with either shovel-loading hopper, or swivel drive for separate feed conveyor . . . is capable of producing especially large amounts of ¾" and smaller product.

BUILDERS OF ROAD MACHINERY SINCE 1880

Austin Western

• It isn't necessary to specify oversized pipe for your large-diameter water lines to meet anticipated "shrinkage" in flow and capacity due to tuberculation.

It's far less expensive to *prevent tuberculation* by coating the pipe interior with a glass-smooth spun lining of Koppers Bitumastic® 70-B Enamel. Then you can select pipe size solely on the basis of desired capacity.

And Bitumastic gives you a lastingly-high coefficient of flow that reduces pumping costs . . . results in savings that more than pay the cost of the lining.

Koppers Bitumastic 70-B Enamel also makes it unnecessary for you to specify additional wall thickness to compensate for corrosion. An exterior coating of Bitumastic 70-B Enamel, combined with the spun lining, forms a barrier against all types of corrosion, inside the pipe and out.

Make certain that your community is getting its money's worth of proper protection—specify Koppers Bitumastic 70-B Enamel for your large-diameter lines.

KOPPERS BITUMASTIC ENAMELS
REG. U.S. PAT. OFF.

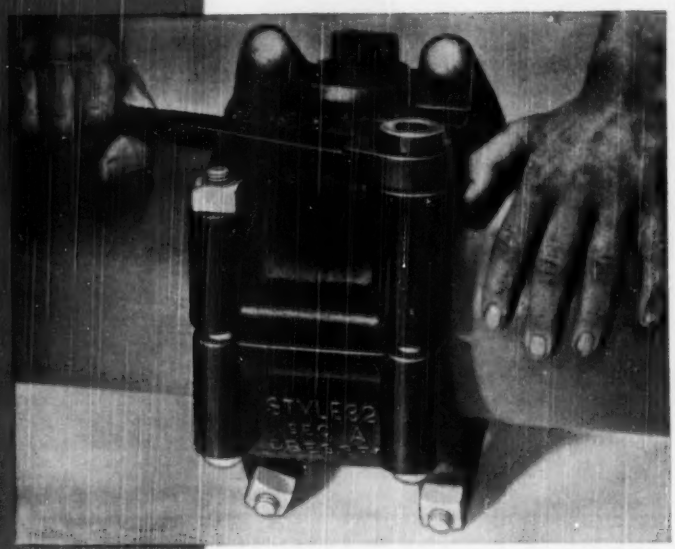
KOPPERS COMPANY, INC., TAR PRODUCTS DIVISION, DEPT. 922T, PITTSBURGH 19, PA.

one man . . . one wrench . . . ten minutes

equals

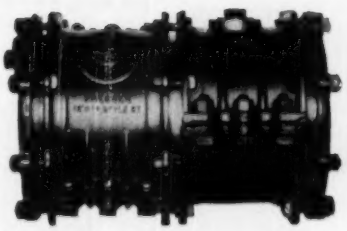
permanent

repair



When winter breaks occur, be ready to make quick, *permanent* repairs with a Dresser "Adjustable" Repair Sleeve, Style 82. Regardless of weather, one man, using only a wrench, can repair a break or split in a matter of minutes. Interchangeable sections make these "pre-packed" repair sleeves adjustable to exact fit on all classes of AWWA pipe, and the specially compounded rubber gaskets introduce flexibility into your line.

The *low price* of the Style 82 offers genuine economy. Order now—to be sure you have a supply on hand for emergency repairs this winter. For CIP from 4″ to 8″ in diameter.



Dresser Split Sleeve, Style 57C, used singly or in combination (as shown above), encloses breaks, holes, splits in CIP longer than the Style 82 will accommodate. Available in sizes through 12″.

DRESSER REPAIR SLEEVES

Dresser Manufacturing Division (One of the Dresser Industries), Bradford, Pennsylvania • In Texas: 1121 Rothwell St., Houston
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PIPE CLEANING TOOLS

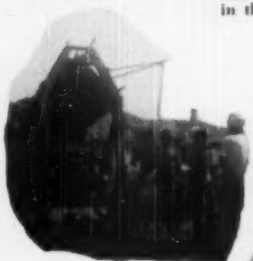
AROUND the WORLD

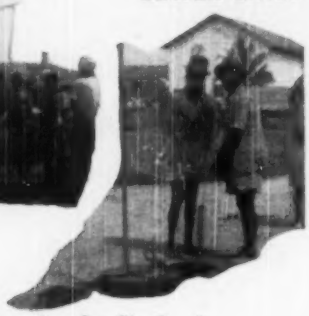
OSLO, NORWAY — SINGAPORE, M. P.

"Flexible" Power Bucket Machines, Power Drive, Rods and Tools make work easier in the Orient too.

*All this debris taken from 10" pipe. Section shows perfect job.

SEWER LINES





WATER LINES

"Flexibles" in OSLO and SINGAPORE—as well as in the U. S. A.

"FLEXIBLE"

UNDERGROUND PIPE CLEANING CO. — SEWER-ROD EQUIPMENT CO.

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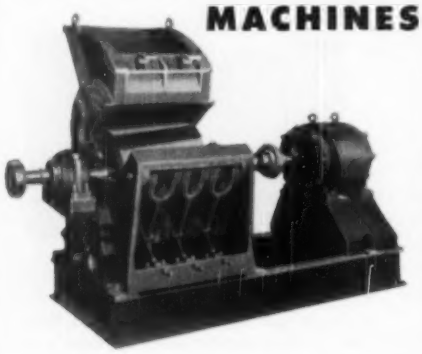
Box 167 Los Nietos, Calif. — 41 Greenway St. Hamden, Conn. — 2786 Durango Ave. Los Angeles 34, Calif. — 709 House Bldg. Pittsburgh 22, Pa. — 4455 S. E. 24th Ave. Portland 2, Ore. — 351 W. Jefferson Blvd. Dallas, Texas

M & M REDUCTION MACHINES

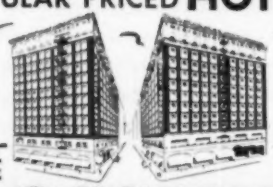


These efficient machines will rapidly reduce otherwise unusable waste products to uniform size for easy handling. The product may be used as a fuel for municipal incinerators and power plants. M & M Reduction Machines are the most practical method of garbage disposal. Many applications are being made in industry for turning factory waste into valuable by-products. Cut disposal costs with M & M Reduction Machines. Send us your problems.

MITTS & MERRILL

104 HOLDEN STREET • SAGINAW, MICHIGAN

The LARGEST POPULAR PRICED HOTEL



THE **ROSSLYN**

$350,000 SPENT IN MODERNIZATION

In the heart of the important downtown business and shopping districts, the Rosslyn offers more for your money than any other high class hotel . . . Advance reservations accepted and definitely confirmed with no time limit on your stay . . . Special drive-in Auto Lobby . . . You'll enjoy the perpetual sunshine of our Garden Sun Roof.

SENSIBLE RATES — SINGLE 2.50 TO 8.00 DOUBLE 3.50 TO 10.00

IN LOS ANGELES

There's a new Trend in Fireboats

All over the country, the trend is to smaller, more flexible fireboats of greater pumping capacity—and General Motors Diesel power

PHILADELPHIA bought a new 75-ft. 6000 g.p.m. fireboat designed by Thos. D. Bowes, marine engineer of Philadelphia, and built by the R.T.C. Shipbuilding Co. around a GM Diesel "Quad 6" engine. She has since purchased two more similar boats, 80 feet long and equipped to throw 320,000 gallons of foam as well.

HOUSTON port officials studied Philadelphia's new boats and have since accepted delivery of The "Captain Crotty." Same designer, same plans, same power—the GM Diesel 800 H.P. "Quad 6."

ISRAEL, for the port of Haifa, now has a GM Diesel-powered boat designed by Mr. Bowes and built by R.T.C. This boat, the "Kaba'it," also carries two GM Diesel-powered 3000 g.p.m. salvage pumps.

HONOLULU T. H. has ordered a Bowes-designed boat of 87-ft. length, 9000 g.p.m. and 320,000 gallons of foam capacity, powered by a "Quad 6" and two "Single 6" GM Diesel engines. This boat is being built by Albina Engine and Machine Works of Portland, Ore.

CHICAGO recently installed two new 93-ft. 12,000 g.p.m. GM Diesel-powered fireboats. Built at Sturgeon Bay by Christy Corporation, and designed by John Alden, each boat is equipped with four 400 H.P. General Motors "Twin 6" engines and two 30 kw GM Diesel generator sets.

Smaller boats, with modern mass-production Diesel power units, obviously cost less. Rugged, all-steel 6000 to 12,000 gallons-per-minute units are being built today for *half* what cities paid for a fireboat a few years ago. Available at a minute's notice without warm-up or "round-the-clock" firing of steam boilers, these boats save thousands of dollars in fuel costs alone—money that can be spent more effectively for additional fire equipment and man power.

Compact, high-speed, 2-cycle GM Diesel engines *direct-connected* to high capacity centrifugal pumps put 800 to 1600 H.P., complete with pumps and piping, into a space not much larger than a good size living room.

With front-end power take-offs direct-connected to pumps, the full power of these versatile engines is available for both propulsion and pumping. Multiple-engine arrangement of GM "71" Diesels provides extreme flexibility and reserve capacity. One or more engines can be shut down while the others are operating.

What is *your* city doing about modern water-front fire protection? Your inquiries are invited.

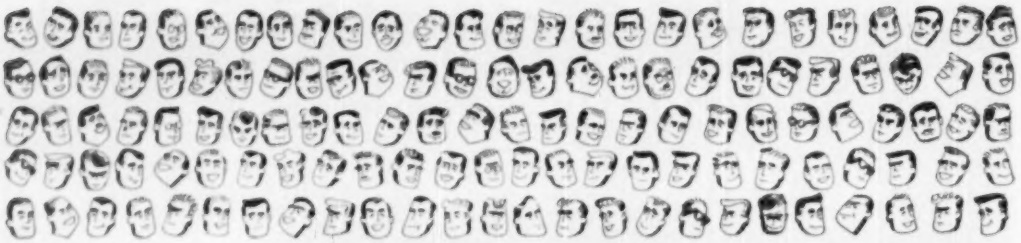
DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES...Up to 200 H.P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS...Up to 800 H.P.

GENERAL MOTORS

GM GENERAL MOTORS DIESEL POWER

DIESEL BRAWN WITHOUT THE BULK

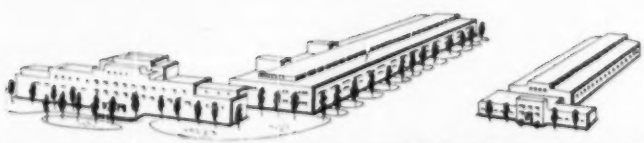


257 FIELD REPRESENTATIVES

48 INSTALLATION INSTRUCTORS

58 SALES OFFICES

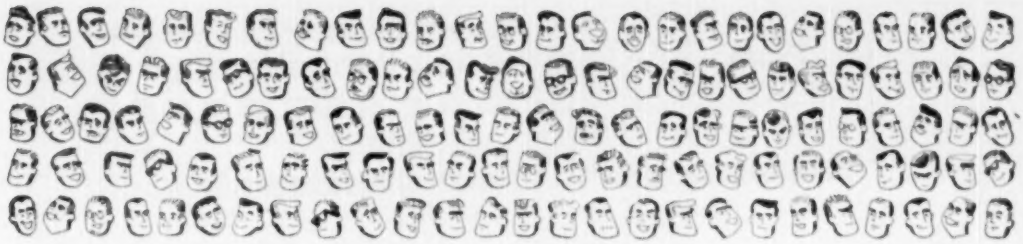
5 MANUFACTURING LOCATIONS



THE LARGEST RESEARCH CENTER OF ITS KIND

JOHNS-MANVILLE PRODUCTS

Johns-Manville



At your service—

. . . a complete, nationwide TRANSITE PIPE ORGANIZATION

Here is an organization which, over the past many years, has helped to bring a better, a more efficient and a more economical means of water transportation to many hundreds of American cities and towns.

Its facilities include more than 250 field representatives with headquarters in 58 cities. It also comprises a staff of competent installation instructors who explain recommended installation practices to pipe-laying crews. This Johns-Manville service is an important factor in helping to assure the installation economies as well as the long-term *overall* economies that go with Transite Pressure Pipe.

Behind this field organization are the modern production methods which assure the high quality of the finished product. These begin with careful selection of raw materials and are continued through the special processing operations to the final tests which each individual length of pipe must undergo before shipment is made. Five conveniently located plants now serve Transite Pipe users from coast to coast.

And back of all this is engineering—and research. For without them, the plus values that have been built into Transite Pipe would not have been possible. Today, in the new J-M Research Center, the engineer and the technician continue to find new answers to old problems. Their work is an indispensable part of the complete Transite Pipe service which Johns-Manville offers the water works industry. For further information, write Johns-Manville, Box 290, New York 16, N. Y.

*TRANSITE is a Johns-Manville registered trade mark

TRANSITE ASBESTOS—CEMENT PRESSURE PIPE

FOR BETTER WATER SERVICE

New 300 Ton Nichols Monohearth MECHANICALLY STOKED INCINERATOR PLANT NEARING COMPLETION—

Alexander Potter Associates
Consulting Engineers
New York City

ARLINGTON COUNTY, VA.
(Populous Suburb of Washington, D. C.)

The Last Word In
Incinerator Plant Design

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1477 SHERBROOKE ST. W., MONTREAL 25, CAN.

Using the 5-HP GRAVELY
IS LIKE HAVING
EIGHT MORE MEN
On Your Maintenance Crew

Yes, City records prove that the Powerful 5-HP GRAVELY Tractor with its 19 attachments does the work of eight men. . . . Some of these attachments listed below will help you cut your city's maintenance costs.

30-Inch Lawn Mower
72-Inch Gang Mowers
42-Inch Sickle Mower
50-Gallon Sprayer
Power Sweeper
Snow Plow
Rotary Plow
Air Compressor
Rotary Saw

Nineteen attachments are available. Fill out the coupon below for our NEW catalog of GRAVELY Equipment. See how the GRAVELY can save your city money—do the work of eight more men! Mail today!

SEND FOR FREE CATALOG TODAY!

GRAVELY MOTOR PLOW AND CULTIVATOR COMPANY
BOX 973, DUNBAR, WEST VIRGINIA

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19 YEAR-ROUND, TIME-PROVED ATTACHMENTS

FLORLINE

STREET, SAFETY, PARKING LINES 89.50 F.O.B. Detroit
Efficiently Made at Walking Speed!

Communities from coast to coast are drastically cutting the maintenance costs of traffic and parking lines with FLORLINE. Often pays for itself on the first job! Note these exclusive Florline advantages:

1 man, 1 hand operation. No attachments. Gravity feed.

Makes curved, straight, continuous or skip lines . . . 2, 3 or 4 inches wide with interchangeable carriages.

Holds 1½ gals. paint, lacquer, whitewash. Cannot spill. Portable, efficient, speedy. Pays for itself quickly. Easy to clean, transport and store. FULLY GUARANTEED.

Write today for folder and list of users. Dept. MB.

H. C. SWEET CO.
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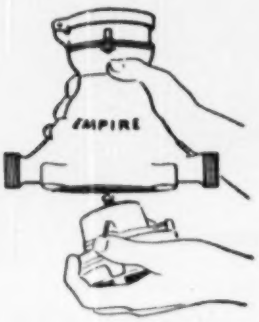
ROCKWELL
EMPIRE
Oscillating Piston
WATER METERS

COST LESS TO REPAIR

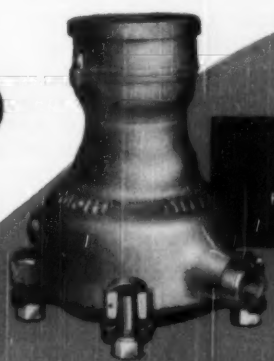


ALL INTERIOR PARTS ASSEMBLE AS A COMPLETE UNIT FOR INSERTION IN CASE

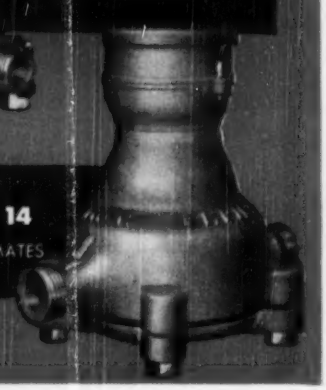
Here is the simple arrangement of measuring chamber and gear train parts in Rockwell-built Empire water meters. Note there are only three interior castings. They assemble without the use of any screws. Fitting is quick, positive. The assembled mechanism can be tested for its free running qualities prior to being bolted in the meter case.

Empire meters have fewer parts—better parts—exactingly interchangeable parts. Dismantling and assembly is quick, easy—to save time and money in meter shop operations. Thus the noted initial long life of these meters can be economically renewed to give many more years of uninterrupted service.

- SIMPLE CONSTRUCTION
- INTERCHANGEABILITY
- FEWEST WORKING PARTS



TYPE 12
FOR COLD CLIMATES



TYPE 14
FOR WARM CLIMATES

Rockwell MANUFACTURING COMPANY
PITTSBURGH 8, PA.
Atlanta Boston Chicago Columbus Houston Kansas City Los Angeles
New York Pittsburgh San Francisco Seattle Tulsa

T-LOCK AMER-PLATE

THE NEW PROTECTIVE LINING FOR CONCRETE PIPE AND STRUCTURES

T-LOCK AMER-PLATE is a practical sheet lining that provides enduring and economical protection despite extremely corrosive conditions. It is the result of many years experience in the manufacture and application of AMERCOAT protective coatings for all types of industries.

This heavy-duty protective lining is especially adapted for use in sewage lines and structures exposed to severe corrosive action where permanent protection is of vital importance.

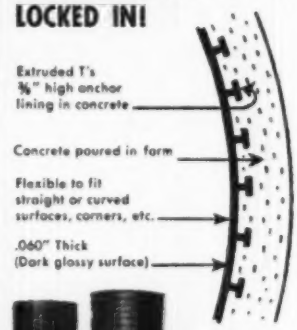
Composed of inert resins and plasticizers, AMER-PLATE is impervious to gases, highly resistant to most acids, alkalies, alcohol, oils, salts and petroleum products, has very low moisture vapor transfer and will not support combustion. Odorless and tasteless, it contains no toxic materials.

T-LOCK AMER-PLATE is applied to the inner forms of concrete pipe, structures and tanks. When the concrete is poured, the Tees are embedded and locked into the concrete and become an integral part of the finished product.

Over 10 years of development and testing have proved it to be practically indestructible in the service for which it is designed.

Amercoat CORPORATION
A Division of
American Pipe and Construction Co.
4809 Firestone Blvd., South Gate, Calif.

Here's how this tough, long-lasting, corrosion-resistant lining is LOCKED IN!


Extruded T's ⅜" high anchor lining in concrete
Concrete poured in form
Flexible to fit straight or curved surfaces, corners, etc.
.060" Thick (Dark glossy surface)

Placing pipe reinforcing cage over T-Lock sheet set up around inner-form.

Example of T-Lock sheet formed around complex structural members.

"Hydrocrane Cuts Our Travel and Set-up Time 95%"

WRITES A WATER DEPARTMENT SUPERINTENDENT

"We've reduced travel and set-up time by 95% over other equipment with our fast, truck-mounted Hydrocrane," writes W. J. Bleyle, Supt. of Water Dept., Tonawanda, New York. "This rig is a key unit in the maintenance of our water system.

"In the past 11 months we've dug up and replaced or moved 40 fire hydrants with the Hydrocrane. Usually the crane operator and two men handled the job — at times just the operator and one worker. With the Hydrocrane's precision hydraulic control, hydrants are eased into place quickly and without damage. We estimate savings at above $40 per installation.

"On one pipe job we set over 2,000 feet of 2-inch copper pipe. Here the Hydrocrane had a big edge over other equipment. It maneuvered easily under trees and wires and could be driven onto lawns and driveways without damage to them. We also laid over 300 feet of hydrant extension plus removing and replacing water mains with size ranges of from 4 to 16 inches. On repair work the Hydrocrane uncovered 26 water main leaks of various sizes. This used to be a tough, slow job with hand labor as wet dirt is heavy and sticky — now we handle the job in short order."

Two Hydrocrane sizes — 1/4 yard, 2-ton and 3/8 yard, 3-ton. Available with clamshell bucket, crane hook, magnet, catch basin bucket, snow bucket, 3-tine and multi-tine grapple. Send the coupon for full details.

Here the Town of Tonawanda's H-2 Hydrocrane unloads 18-foot sections of 6 and 8-inch water pipe. The crane unloaded over 2000 feet of pipe in 45 minutes.

BUCYRUS-ERIE HYDROCRANE DIVISION
SOUTH MILWAUKEE, WISCONSIN

I want the full story on the Hydrocrane.

Name .....

Company .....

Address .....

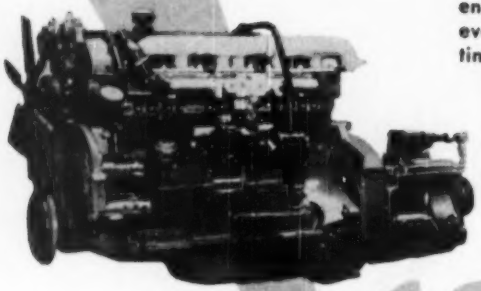
City ..... State .....

64H50

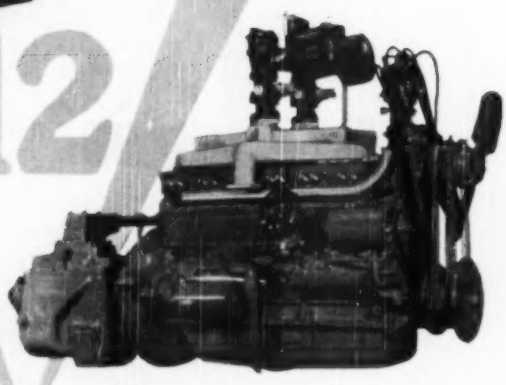
THERE'S *Extra Value* FOR YOU . .

YOU Can't beat American LaFrance V-12 Engines for • EFFICIENCY • SUSTAINED POWER • RELIABILITY • EASY STARTING • LONG SERVICE LIFE

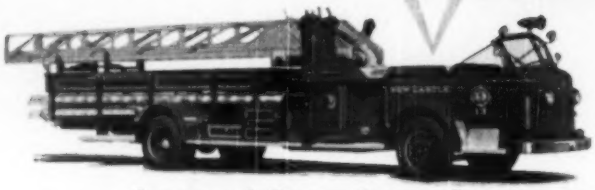
Twenty years of fire service use has proved the fundamental superiority of the V-12 engine. Easy starting and dependable in every emergency. Built for heavy duty continuous service. Periodic tests of 300 hours at full throttle, full power, prove every working part.



• 275 B.H.P. (certified) Model E engine for large capacity pumpers (1000 g.p.m., 1250 g.p.m., 1500 g.p.m.) or heavy apparatus in areas with steep hills.



• 215 B.H.P. (certified) Model J engine for 1000 g.p.m. pumpers. Standard in quads and service aerials. Also tractor drawn aerials and city service ladder trucks.



American-LaFrance V-12 engines are designed, and manufactured, exclusively in our own factory. Service is always available for an American-LaFrance engine.

AMERICAN-LAFRANCE-FOAMITE CORPORATION
ELMIRA, NEW YORK, U. S. A.
LAFRANCE FIRE ENGINE AND FOAMITE LIMITED
TORONTO 9, ONTARIO, CANADA

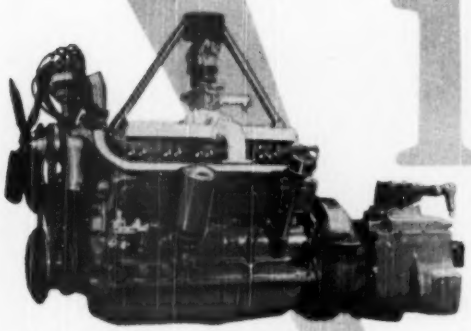
IN AMERICAN-LAFRANCE FIRE APPARATUS

The wide operating range, uniform and sustained power give fast acceleration and hill climbing ability that has no equal.

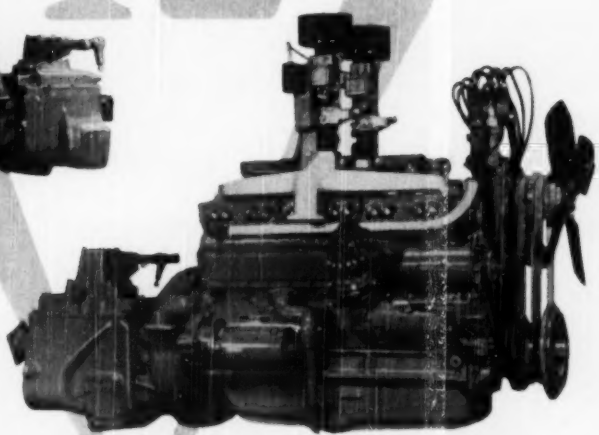
The high ratio of horsepower output per unit of displacement is one measure of the high efficiency and economy.

All American-LaFrance V-12 engines have full pressure lubrication to every moving surface. Even the cylinder walls have direct pressure oiling. No dry starts with American-LaFrance V-12 engines. All crankshafts are counterweighted and in accurate dynamic balance. All bearing surfaces are TOCCO hardened for long life.

For smoothness and powerful flexibility in operation, just drive an American-LaFrance V-12 powered fire truck. It will amaze and please you.

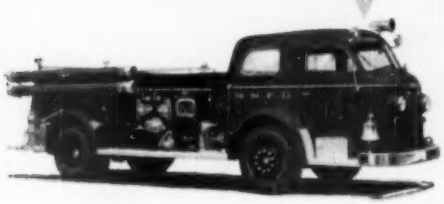


• 170 B.H.P. (certified) Model F engine for pumpers of 500 g.p.m. and 600 g.p.m. capacity.



• 204 B.H.P. (certified) Model G engine for pumpers of 750 g.p.m. rated capacity. Full power output from all American-LaFrance V-12 engines on standard gasoline. No premium fuel required.

Visit the American LaFrance exhibit for the newest and finest in fire apparatus and fire fighting equipment at the I.A.F.C. Conference, San Francisco, September 12-15, 1950.



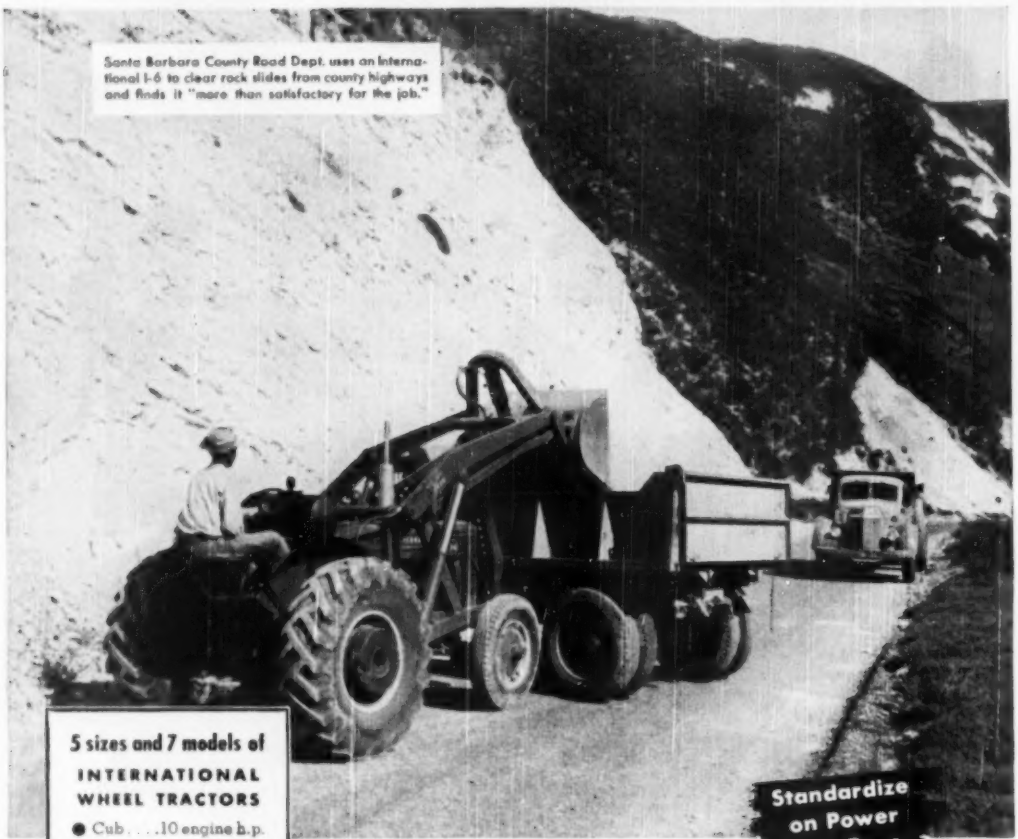
• Fourth in a series of advertisements outlining the EXTRA VALUES in American-LaFrance fire engines.

RIGHT for Road Maintenance

Fast, maneuverable and efficient workers on the job, International wheel tractors are just right for county and municipal maintenance. Their speed gets them to the trouble spots quickly, their maneuverability allows them to work in tight spots and their efficiency of operation gets the job done with the least interruption of traffic.

Your International Industrial Power Distributors handle the full line of International wheel tractors. Let them help you select the right tractor for your county or municipal needs. You'll find Internationals are just what you need for low cost road maintenance. See your Distributor now, and let him help you stretch your maintenance dollars with International "Power on Wheels."

INTERNATIONAL HARVESTER COMPANY • Chicago



Santa Barbara County Road Dept. uses an International I-6 to clear rock slides from county highways and finds it "more than satisfactory for the job."

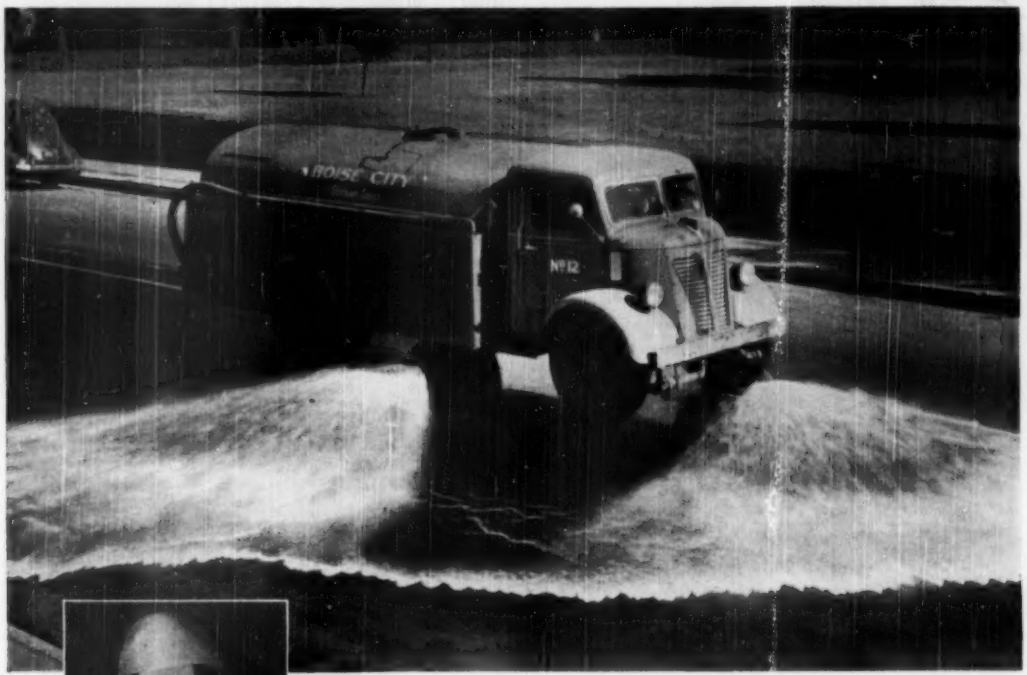
5 sizes and 7 models of INTERNATIONAL WHEEL TRACTORS

- Cub . . . .10 engine h.p.
- Super A, 20 engine h.p.
- I-4 . . . .29½ engine h.p.
- I-6 . . . 40½ engine h.p. ID-6 (diesel), 40½ engine h.p.
- I-9 . . . . 55 engine h.p. ID-9 (diesel), 55 engine h.p.

Standardize on Power that Pays

INTERNATIONAL HARVESTER

INTERNATIONAL INDUSTRIAL POWER



Mr. Frank Maxfield, *Superintendent of Street Division, Boise, Idaho*

..."used year 'round in Boise, Idaho for cleaning streets, cross street syphons and sewers"

Purchased in 1941 by the City of Boise, Idaho, an Etnyre Street Flusher is still serving the city to clean streets, cross street syphons and sewers, according to a report from Mr. Frank Maxfield, Superintendent of the Street Division of the Department of Public Works. Weather permitting, this Etnyre Flusher is used the year 'round, serving as an auxiliary fire fighter as well as for street cleaning purposes. In 1949, a second Etnyre Flusher was purchased by the City of Boise.

In many other cities throughout the world, Etnyre Flushers are being used for these and a dozen other uses. In every state in the Union, Etnyre Flushers are used to keep streets thoroughly cleaned, reduce bacterial count and disease hazard, cool pavements, lay dust. High pressure streams of water clean streets up to 42 feet wide in one trip—even under parked cars. Other Etnyre Flushers are used for tree spraying, watering shrubbery, pumping out basements, fire fighting and surface sprinkling.

Available in four basic styles with front or rear engine drive, each Flusher is regularly equipped with 3 nozzles, 600 G. P. M. pump, 800 to 3000 gallon tank. Get the facts on this versatile Etnyre Flusher—write, wire, or phone for data and prices today.

ETNYRE
Street Flushers
"THE MACHINE OF A DOZEN USES"

E. D. ETNYRE & CO., Oregon, Ill.

MIRO-FLEX MEANS LONG LIFE

★ BAKED ENAMEL — EMBOSSED ON BONDERIZED STEEL

Choose your traffic control signs from Miro-Flex, *America's finest embossed sign line* . . . so sturdy they wear well against wind and weather, so attractive and legible they wear well with motorists.

Uniform embossment (not less than 0.100") provides a rugged unit. Signs built to last of zinc-coated bonderized steel. Finished in highest grade enamels BAKED ON in thermostatically controlled ovens.

Buy Miro-Flex signs plain embossed or reflectorized, with glass or plastic buttons. Offered standard or special. *Reduce traffic trouble with Miro-Flex.* For detail on this complete sign line, write for catalog.

MANUFACTURED BY

10-49

MIRO-FLEX CO., INC.

1824 EAST SECOND STREET · WICHITA, KANSAS

LOW-COST WATER

from Caisson Wells

The Caisson Well, a large reinforced concrete well with a diameter 7 to 20 feet, or more, may solve your water problem economically and permanently. Highly efficient in water bearing formations, as shallow as 10 feet. Lifelong installation requiring practically no maintenance.

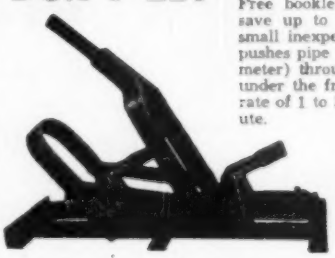
Write for information

CAISSON WELLS, INC.
Ground Water Engineers and Contractors
33 W. 42nd Street, New York 18, N. Y.

DON'T LET

OLD MAN WINTER STOP *Your* PIPE INSTALLATIONS

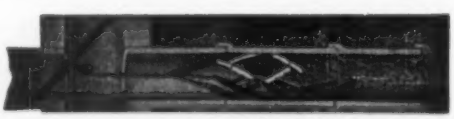
Free booklet tells how to save up to 80% with this small inexpensive tool that pushes pipe (up to 15" diameter) through the ground, under the frost line, at the rate of 1 to 5 feet per minute.

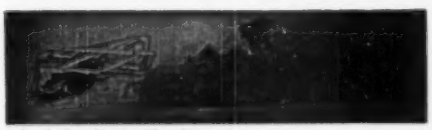


Address Dept. P

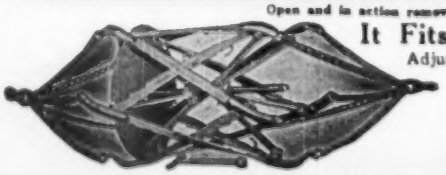
GIANT MFG. CO.
Council Bluffs, Ia.

EXPANDING ROOT CUTTER & SEWER CLEANER





Open and in action removing roots and caked sediment like this.



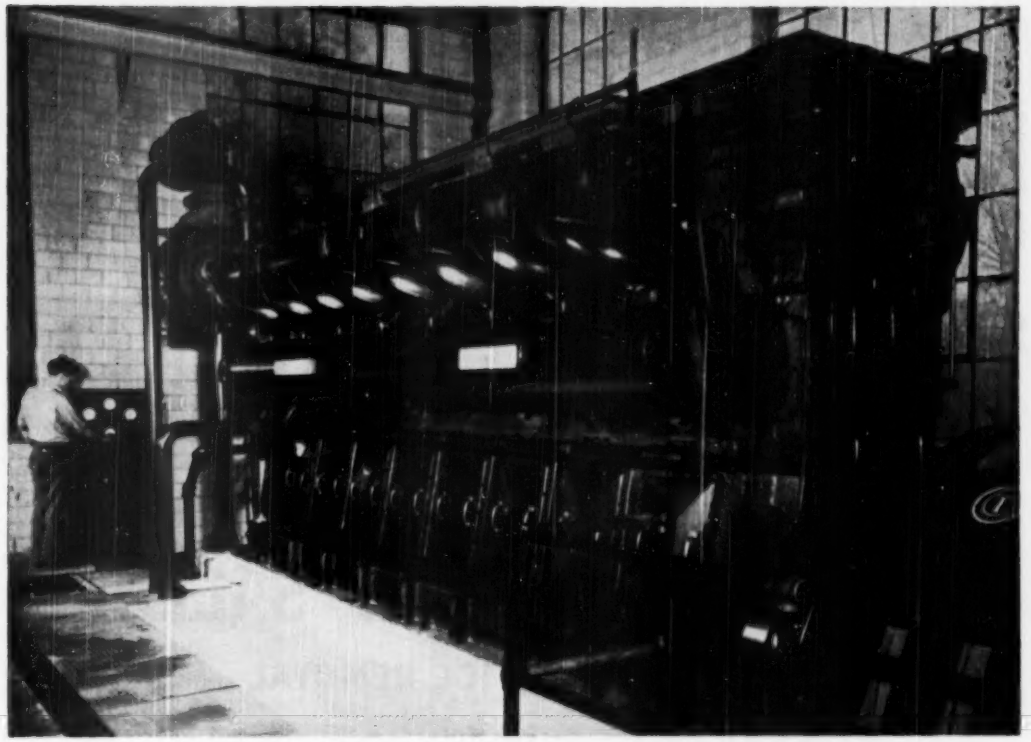
It Fits in on Every Sewer Cleaning Job

Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY
108 East Walnut St. Nappanee, Ind.



FROM RED TO BLACK IN A HURRY

● Soaring costs and rising peak demands caused an Ohio generating plant to operate in the red. The management decided to do something about it—and they did.

They looked over the engine field . . . bought a supercharged Superior Diesel . . . and put it to work. After installation, over-all plant capacity was stepped-up almost 17% per gallon of fuel oil. This Model 80 Superior Engine also produced more BHP per gallon of lube oil . . . more than doubling the economy experienced in previous operations. The profit and loss statement changed from red to over $34,000 in the black in just ten months.

If you are looking for ways to cut power costs, chances are that a Superior representative can supply the answer. Why not have him explain how Superior pushes operating costs down? Or, if you prefer, write for our fully illustrated, 20-page booklet.

THE NATIONAL SUPPLY COMPANY
SUPERIOR ENGINE DIVISION
Plant and General Sales Office: Springfield, Ohio

THE NATIONAL SUPPLY COMPANY NSCO

Superior **DIESELS**

Locomotive · Marine · Oil Field · Stationary

HOW THE CITY OF ROCHESTER SAVES $2000.00 PER COVERAGE WITH STERLING ROCK SALT

FOR SNOW AND ICE REMOVAL

Remarkable Savings Reported When City Switches from Salt and Cinder Mixture to Straight STERLING *Auger-Action* ROCK SALT

READ THIS STATEMENT BY

EDWARD F. NIER

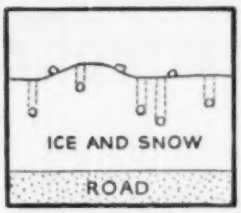
Commissioner of Public Works
Rochester, N. Y.

• Mr. Edward F. Nier, Commissioner of Public Works, of Rochester, New York, says . . . "Our experiences in the 1948-49 season taught us that it is cheaper to use straight Rock Salt than a salt and cinder mixture. A load of Rock Salt will cover four or five times as much street surface. In addition, we eliminated the cost of cinders, the added expense of mixing them, and the cost of sweeping them off the streets and digging them out of catch basins.

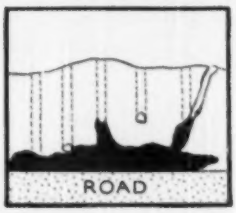
"More important, however, is the way Rock Salt removes snow and ice, and keeps loose snow from packing and freezing. In previous years we had to spend a good deal of money to chop ice out of gutters, and we had a lot of trouble from street floodings because gutters and catch basins froze up. All this is finished now. The Sterling Rock Salt we put on the streets keeps the gutters and catch basins open, and we have no drainage problem."

HERE'S HOW IT WORKS

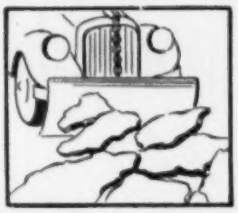
Sterling Auger-Action Rock Salt can be used in any mechanical spreader. Requires no special treatment.



Each Sterling Auger-Action Rock Salt crystal bores a hole its own size in ice or snow.



Salt crystal reaches pavement . . . becomes brine. Brine breaks the bond between road surface and ice.



Broken ice can be removed with one pass of plow or scraper. Passage of vehicles clears heavy traffic spots.

CITY OF ROCHESTER, N. Y.

Comparative Costs

STRAIGHT ROCK SALT vs. SALT & CINDERS

SALT-CINDER MIXTURE (1947-48) (370 MILES SERVICED)		STRAIGHT ROCK SALT (1949-50) (370 MILES SERVICED)	
COST OF CINDERS Delivered Storage Yard, Per Cubic Yard	$ 1.40	**COST OF SALT** ($9.50 Per Ton Delivered Unloaded Storage Yard)	$ 9.50
COST OF PILING Per Cubic Yard	.20	**COST OF PILING SALT** Per Ton	.20
COST OF SALT ADDED (150# Per Cu. Yd. Cinders), Per Cu. Yd.	.67		
COST OF PILING SALT Per Cubic Yard	.20		
COST OF LOADING SPREADER At Time of Storm, Per Cubic Yard	.20	**COST OF LOADING SPREADER TRUCK** At Time of Storm, Per Ton	.20
COST OF SPREADING Salt-Cinder Mixture, Per Cubic Yard	.43	**COST OF SPREADING SALT** (12 Tons Salt, 1000# Per Mile, Truck Cost $.30 Per Mile, Labor $2.20 Per Hour), Per Ton	.85
SPREADING COST PER CUBIC YARD	$ 3.10		
Rate: 3 Yards	3		
COST PER MILE FOR SALT-CINDER MIXTURE LAID DOWN	$ 9.30	**COST OF SALT LAID** Per Ton	$10.75
ADD: Spring Cleaning Cost to Remove Cinders from Basins and Receivers	$ 1.50	**SPREADING RATE:** 2 Miles Per Ton	
TOTAL COST PER MILE FOR SALT-CINDER MIXTURE	$10.80	**TOTAL COST PER MILE USING STRAIGHT ROCK SALT**	$ 5.38

OVER $2000.00 SAVED EVERY COVERAGE

STERLING AUGER-ACTION ROCK SALT

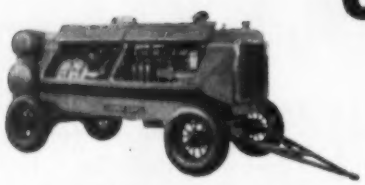
INTERNATIONAL SALT COMPANY, INC.

SCRANTON, PA.

under bid at a profit!

with these 3 way Gardner-Denver advantages

—More work from every crew—every shift
—A steady pace when the going gets tough
—Less "time out" for maintenance



PORTABLE COMPRESSORS— Two-stage, water-cooled — deliver top air capacity regardless of high elevation, desert heat or sub-zero weather. Sizes from 105 to 500 cu. ft.

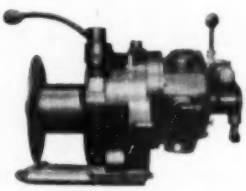
SINKERS High hole-cleaning ability for faster drilling — powerful rotation saves stuck steel and tight holes — easy riding — a size and weight for every rock.

PAVING BREAKERS Safety latch gives extra protection — reduced recoil and shorter length cause less fatigue — three sizes for fast demolition on light, medium or heavy-duty work.

CLAY AND TRENCH DIGGERS Make fast time in clay or hardpan — useful, too, for chopping, cutting or light demolition — furnished with "D" handle or "T" extension handle.

WAGON DRILLS — Maneuverable for quick hole spotting — positive, effortless blowing and handy feed controls for steady footage, faster drilling — three sizes.

BACKFILL TAMPER— Well-balanced for easy handling — ruggedly designed — seldom requires maintenance.



AIR HOISTS — Smooth, flexible hoisting power assures accurate load spotting — for 1250 to 3000 pounds rope pull.

L012 LINE OILER — Completely automatic — shuts off air when empty — protects your valuable air tools against "dry runs."

Write for descriptive bulletins.

GARDNER-DENVER *Since 1859*

Gardner-Denver Company, Quincy, Illinois.
In Canada: Gardner-Denver Company (Canada), Ltd., Toronto, Ontario.

OVER 10 YEARS..

FAST ..SAFE

Philadelphia LIMITORQUE Controls on the job . . .

..RELIABLE

More than a decade ago a large number of LimiTorque Controls were installed at the then new Sewage Disposal Plant of a western New York city. Many of these units were mounted outdoors where extremes in temperature and all weather conditions had to be encountered. The thorough design and precision of construction of the LimiTorques has been proven by the dependable performance of the controls since installation.

LimiTorque Valve Operators are the modern, economical and dependable way to open and close plug, cock, globe, gate and disc valves . . . by local and remote control. Just a "*push of the button*" sets them in operation.

In addition, they are *absolutely safe*, because the Torque Seating Switch insures tight valve closure, without strain on disc, seating rings or valve stem. Protection from damage due to "foreign objects" is positively prevented, because the motor is automatically shut-off, should an obstruction occur in closing.

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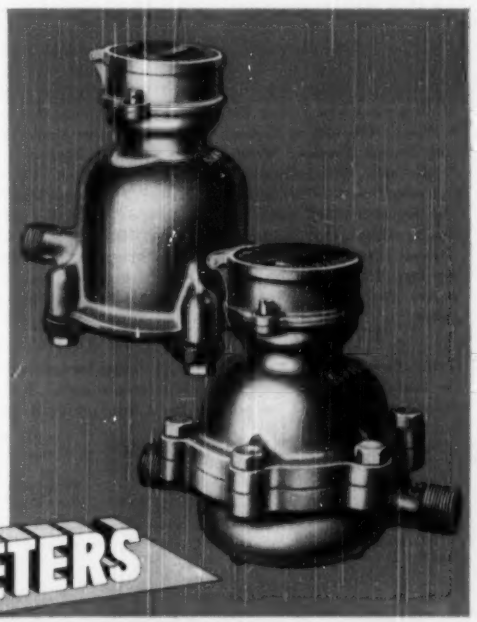

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By Arthur D. Gallion, *Dean,*
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University of Southern California
in collaboration with
Simon Eisher, *Professor of City Planning*
School of Architecture, University of Southern California,
and Architect, Los Angeles City Planning Commission

This exceptionally practical new book covers both historical backgrounds and present-day problems in city planning and development. It begins with a thorough review of urban design, emphasizing the phases which influence the physical patterns of a city's growth. The problems presented by the city of today are discussed in the light of contemporary trends in city planning, and specific proposals are made concerning policies, designs and procedures.

The authors have sought throughout to correlate the purely technical facts, and the processes followed in professional practice with a more general inquiry into the reasons why planning is necessary, and how it should be conducted. They have furnished vital survey material and many enlightening illustrations, and have included much material which will extend the reader's concept of urban development well beyond currently accepted forms. Thus, with its technical soundness and flexibility of outlook, this timely book is ideally suited as a general reference work for city officials.

BRIEF OUTLINE OF CONTENTS

The City of the Past: The Dawn of Urbanization; The Classic City; The Medieval Town; The Neo-Classic City. *The Industrial City*: The Industrial Revolution; The City of Contrasts; The Living Environment; Transition; Issues in Focus. *The City of Today*: The Age of Urban Anarchy; The Zoning Fantasy; Weeds in the Garden; Expansion; Traffic and Transportation; Platitudes; Housing. *The Planning Process*: The Legal Foundation; The Master Plan; The Subdivision of Land. *Contemporary Standards*: The Zoning Plan; The Neighborhood Unit; The Commercial Centers; The Circulation System. *New Horizons*: Rebuilding Our Cities; Population Density; Control of Obsolescence; The New Utopians, Metamorphosis. Bibliography. Index.

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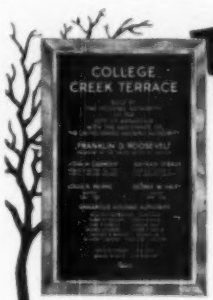

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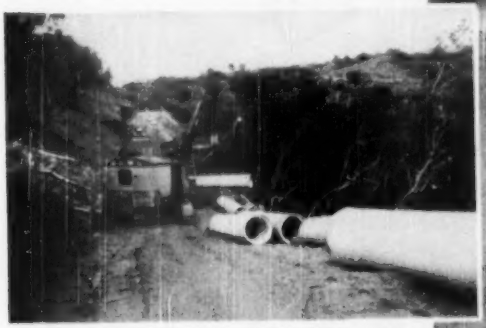

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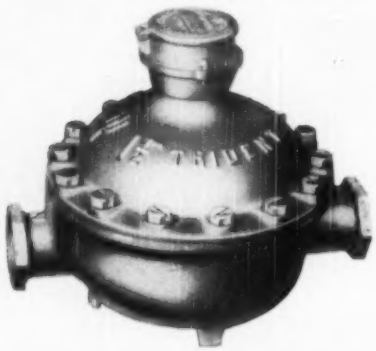

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Akron, Ohio,

Strengthens Its Water Plant Facilities

New pumping, chemical handling and coal handling equipment being installed under present improvement program

Akron lies on the nation's "Great Divide," and must husband its water resources carefully.

THIRTY-FIVE years of continuous service generally is considered enough to merit a roast-beef dinner, a veteran's award, a pat on the back, some words of praise, and retirement. But for the Akron (Ohio) water works it means only a review of the present plant, some additions here and there, and an assignment to roll up your sleeves for another 35 years of operation. There might even be a crisp memo from Wendell R. La Due, Akron's Chief Engineer of Water and Sewerage, to quit looking at the past, and to remember that the long-time policy of this Bureau is to prepare for the future.

Of course, the entire plant is not 35 years old. The basic elements of the plant went into operation in 1915. More filters were added in 1917 and 1921. The settling-basin capacity was boosted in 1925, a high-lift pumping unit went to work in 1933. A new intake was constructed at Lake Rockwell in 1935, along with 960 feet of 72-inch concrete pipe paralleling the existing conduit and cross-connected near the plant. Thus the precedent was established, early in the life of the big plant, that improvements would be undertaken as soon as their efficiency and need became apparent.

Akron Supply Always Ample

This policy has been carried forward by Chief Engineer La Due, rated generally as one of the nation's top waterworks administrators. The adequacy in Akron. You very easily could, however. The city sits on the ridge of the nation's "Great Divide," making it particularly vulnerable for this type of difficulty. It is an inland city and has to develop its water supply from a relatively small river and do so with a carefully conceived set of impounding reservoirs. It is an industrial city that has had to adjust itself to the tremendous growth that the rubber industry and grain-processing plants have undergone. Under the leadership of Mr. La Due and sometimes with only faltering support from the city itself, Akron's water department has acquired and developed over 13,500 acres of lands and forests on its watershed property to protect and equalize the runoff into the Cuyahoga River. In addition, the city acquired 150 acres of orchards and vineyards that are not farmed so that they will not become a problem to the water supply.

The one industrial and two domestic impounding reservoirs are stocked with fish, and the city maintains a fleet of 75 rowboats and other fishing facilities, affording, under controlled conditions, a source of recreation to the people. Fishing regulations are coordinated closely with 17 local conservation and sportsmen's programs through open and frank discussion of regulations. Only certain fish are allowed to be caught and only for certain periods of the year. Income from the rental of these boats averages approximately $75 per day. Although fishing is not allowed in the main domestic impounding reservoir, some 100,000 mature fish are removed annually under agreement with the Ohio State Department of Conservation, and distributed to open waters.

Chief Engineer La Due has probably the most varied responsibility in the entire water-works field. It requires him to be forester, farmer, cattleman, sheepman, arborist, maple syrup pro-

ducer, conservationist, fisherman, and recreation manager in addition to his regular duties as a purveyor of water and collector of sewage for Akron.

The apparently subordinate feature of supplying water is one that commands the attention of municipalities generally and receives the appreciation of the industrial and domestic users of water in Akron locally. The watershed area staked out and forecast by the Bureau of Water Supply's studies and plans is today capable of serving a population of over a million instead of the quarter million that now lives in this city. The abundance of water facilities made it possible for Akron's industries to switch to important war contracts when the nation needed them most. A 52% increase in demand was accepted in three months with no added facilities. It has kept the city's fire-insurance rates low, and has been able to provide water on an economically sound basis without raising water rates in spite of one of the most vicious price spirals in the nation's economic history.

Early Cement-Lining Project

The present plant has 25 rapid sand filters, each rated at 2 mgd. It has a covered settling basin able to hold 3½ mg, thus providing a detention of an hour and 40 minutes at 50-mgd flow. The plant uses steam-powered pumps that force the filtered water to the city through two parallel mains 15 miles long against a static head of 160 feet and a total lift of 200 feet. Both are steel mains, one 36 inches and the other 48 inches. Both are cement-lined by the Centriline process; incidentally, the work on these lines represents one of the first and most extensive of these lining improvements. After some 10 years of service, the lining was inspected and found to be in perfect shape.

Chief Engineer Wendell R. La Due has to be a forester, farmer, conservation expert, and recreation administrator to handle Akron's water supply problem.

As always seems to be the case, the problem in any water supply is that of balancing the demand for water against the supply and treatment facilities. In Akron, the supply is adequate for many years. Settling will be improved and filtering is adequate to meet today's needs with a comfortable 50-mgd figure. However, pumping facilities needed to be strengthened. Coal-handling facilities need improvement. Chemical handling also is being improved and the water conduits will be made more flexible.

Most imposing will be the new chemical building, reaching to a height equivalent to seven stories. The extra height will be used for an automatic vacuum-conveyor system of unloading and storing bulk chemicals. In the old plant, these same chemicals were received and handled in bags. The building will hold five reinforced concrete bins in the central tower capable of storing 600 tons of dry chemicals. Bulk alum and lime will be handled by the new Omega equipment. Chlorine will be received in one-ton containers, and dispensed by Wallace and Tiernan equipment. Activated carbon will be handled in bags; the feeders will all be located on the ground floor of the building.

Probably the most complex step in the new project is the modification of the boiler and pumping plants. Akron has for many years relied on steam power for pumping. When this new improvement was considered, Chief Engineer La Due explored the possibility of electrification with the local power company and learned that it was not particularly interested in supplying power at a price competitive with that furnished by the boilers in the present plant. Therefore, the proposal that the boiler facilities be improved went forward without difficulty, and the present modification was undertaken. However, it had to be undertaken in a way that would allow continuous operation of the plant, since stand-by electric power was not practical.

The first step is to install a new boiler capable of producing 40,000

This is the way the plant will look when completed. The chemical building is on the left.

pounds of steam per hour at 465 psi and 755° F. This boiler, furnished by Wickes Boiler Company, of Saginaw, Mich., is large enough to serve the entire plant. When it is installed, two of the four existing boilers will be removed and a second boiler of equal size will be installed to supply stand-by capacity. New De Laval Steam Turbine Company turbines and pumps also are being installed that will operate under 450 psi instead of 195 psi, as does the existing equipment. A pressure-reducing station and desuperheater will be installed that will make possible the operation of the older equipment under the older pressures.

Coal-Handling Equipment

To expedite handling the coal, a new trestle is being constructed. From it, bottom-dump railroad gondolas can discharge coal into a concrete pocket. A new diesel-driven Ohio Locomotive Company crane and clamshell will transfer the coal from these pockets to suspended steel bins in the boiler room or to emergency ground storage. In spite of coal strikes, an ample supply has been on hand.

To aid in the operation of the filters, a new all-welded Biggs Iron Works Company wash-water standpipe has been completed, and to assist in filter operation, new Palmer surface-wash equipment is being installed. The enlarged plant will also have improved facilities for a laboratory, operator's office, and washroom. The laboratory will be completely furnished with E. H. Sheldon and Company laboratory furniture. In the plant is a clubroom available to operating personnel, since many of them live at the plant and its location is relatively remote from the city itself.

New Pumping Capacity

When the present improvements are completed, the plant will have five existing high-lift pumps that will remain in operation. Two are of the vertical, triple-expansion-engine type whose giant structure still commands attention in the pumping field. One can pump 13 mgd and the other 17 mgd. The third existing pump can handle 10 mgd and is a steam-driven centrifugal. These will require the pressure-reduced, desuperheated steam.

The fourth existing pump, of 5-mgd capacity, is operated by electricity generated at the dam by water power. The fifth pump can handle 15 mgd, was installed in 1934, and will have its turbine changed to run by the new 460-psi steam pressure.

Electric power will operate all auxiliary equipment in the water-purification plant and filtered-water pumping station. This power will be supplied by two condensing steam-turbine generators of 500 kw each, one of which is connected to a new high-lift pump of 20 mgd capacity. For stand-by purposes a gasoline-driven electric generator is being installed, and connection will be maintained with the local power company. Allis-Chalmers switchgear will control all the electrical equipment.

"Ten Years from Today Is Now"

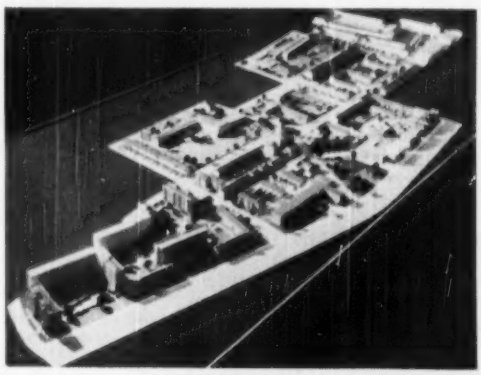
This will take care of the city's need for the present, but as Engineer La Due has often emphasized, "In the business of water supply, ten years from today is *now!*" If the demand grows, and it probably will, the plant will need increased settling capacity and more flocculation basins. In Mr. La Due's over-all planning, there is included construction that will supply flocculation basins measuring 200 by 110 feet, and settling basins measuring 120 by 110 feet. These basins, when completed, will provide 3¼ hours of detention for a design flow of 50 mgd.

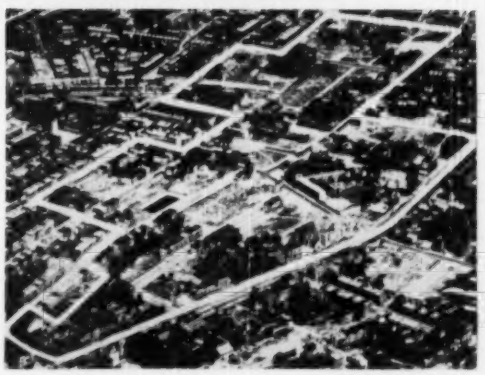
The present improvement work is being financed by the sale of revenue bonds amounting to $4,500,000. The bonds carry an interest rate averaging 2.18% and are callable in 15 years. Parsons, Brinckerhoff, Hall and MacDonald, with G. Gale Dixon as Associate, have been retained as consultants.

"Live" Architectural Exhibit for Festival of Britain

CHOSEN as a "live" architectural exhibit for the nation-wide 1951 Festival of Britain is the 30-acre Lansbury housing development in London's war devastated East End. Estimated as costing the equivalent of over $4,000,000, the Lansbury project is one of 11 similar developments planned for the East End by the London County Council.

Designed as a self-contained neighbourhood unit, Lansbury will include housing for 1,500 people; a special home for old people; schools; churches; children's playgrounds; a market place; three pubs, and 28 stores. During the Festival several temporary features will be added, including a cafeteria to serve 2,000 people daily, an administration building, and exhibitions illustrating modern building research and town planning.





At top is a model of the proposed Lansbury housing development. Lower photo outlines the bombed area on which it will grow.

How Memphis Distributes Its Natural Gas

By W. A. DUNKLEY
Director, Gas Division
Memphis Light, Gas and Water Division
Memphis, Tenn.

The 15 propane tanks, right, give emergency storage equivalent to 32,000,000 cubic feet of gas.

THE gas utility in Memphis is operated as the Gas Division of the Memphis Light, Gas and Water Division, a municipally owned corporation distributing electricity, gas, and water in Shelby County, Tenn., as well as Memphis.

We distribute natural gas transported to Memphis from gas fields in Louisiana and Texas. Gas entering our distribution system passes through four principal trunk mains, 18 to 26 inches in diameter. These trunk mains diverge to various parts of the gas-service area. They have many branches and are interconnected at many points. Also, at many points they deliver gas to load centers, through district regulators. These regulators, usually located in underground vaults, reduce the pressure into lateral mains which they supply. These laterals and their branches are also interconnected. As a rule, the ultimate customer utilizes the gas he buys at a pressure of about 4 ounces per square inch. In many cases customers are served from high-pressure mains, the pressure being reduced at their meters by a small service regulator.

Before natural gas came to Memphis in 1929, we manufactured gas and distributed it, principally through cast-iron bell-joint mains caulked with jute and either lead or cement. We soon discovered that this would not stay tight to dry natural gas; the jute would dry out and disintegrate and the joint would begin to leak. The cast-iron pipe companies then developed various types of mechanical joint. We use them in most of the streets where mains 4 to 8 inches in diameter are required. For mains of diameters smaller than 4 inches, and for customer services, we use steel pipe. We also use steel pipe protected by an enamel coating, applied hot, for high-pressure trunk mains 8 inches and larger in diameter. Size for size, steel mains have a lower first cost, and the use of acetylene and electric welding gives a flexibility in construction of steel mains and services that makes rapid laying possible and appeals to the construction superintendent with a large schedule ahead of him.

Equipment in Use

Our Gas Construction Department uses about 35 trucks of various types; 7 passenger cars for supervisors; 7 trenching machines of various types and sizes; 5 tractors, of which 2 are equipped with side booms for handling pipe and all of which have dozer blades for backfilling; 12 air compressors of which 9 are mounted on trucks; four 300-ampere arc-welding generators on wheels, and a considerable number of trailers for transporting trenching machines from job to job. We use Parsons trenchers when excavating for large mains, Cleveland ditchers for medium sizes, and Barber-Greene machines running on rubber tires for small, scattered extensions.

Excavator Operation

An addition to our equipment, made about three years ago, is the Gradall excavator. Its long, telescoping boom carries a bucket which can be moved in various directions. Its operation reminds me of a giant arm and hand which can turn and flex at the wrist. We have found this machine especially valuable for excavating vaults with vertical sides, for regulators, and for valves. Though considerably slower, it can be used for trenching under conditions where a standard trencher cannot work. It runs on rubber tires and is especially valuable for uncovering broken mains to make repairs.

Another exceedingly useful and versatile piece of equipment is a 12-ton crane-truck which is much used by us in handling long sections of large steel pipe. The crane portion is a product of the Silent Crane and Hoist Com-

pany, Brooklyn, N. Y., and is mounted on a White double-frame chassis.

Another recent addition to our mechanical tools is an air-motor-driven Ka-Mo Tool Company earth auger. This will bore a hole 30 inches in diameter across streets and highways under pavement. We are using this machine at present in the construction of a 26-inch trunk main across the city.

We also have a number of small mechanical accessories, including gasoline engine-driven Gorman-Rupp and Homelite trench pumps, a portable Homelite electric-light plant for emergency work at night, and a motor-driven tapping machine for tapping large mains.

How We Maintain Our System

To facilitate the detection of leaks, we introduce the powerful mercapton odorant into the practically odorless natural gas. This is so potent that less than one-half pound of it will impart a disagreeable odor to a million cubic feet of gas. When gas is burned, the odor disappears. Many of the leaks in our system are detected by odor and are reported by customers or employees. We also use other methods of detection. A man equipped with a Davis Vapotester, a small electrical apparatus that indicates the presence and amount of gas in a sample of air passed through it, is continually on the go, testing manholes of various utilities and basements in the business district. He reports daily to his supervisor and all indications of a leak are promptly followed up.

An experienced man can often detect gas leaks by their effect on grass and other vegetation in the residential areas. One aggressive odorant manufacturer has even trained bloodhounds to locate gas leaks where the company's odorant is used.

Leak Detection

Detecting gas is often much easier than locating the point of escape, especially from a buried pipe. When the leak is under an expensive pavement, a foreman has to use good judgment and some intuition to locate the leak without breaking a lot of pavement unnecessarily. He usually has a series of barholes driven through the pavement along the line of the main. After allowing these holes to ventilate for a few hours, he can, with a leak detector, usually locate the leak where the indication is strongest. If the location of main is not accurately known, he can often find it by use of a Goldak electronic pipe locator.

We carry in stock a large variety of split sleeves, leak clamps, and patches which will enclose or cover almost any kind of leak found, whether a leaking caulked joint in cast-iron pipe, a cracked pipe or fitting, a corrosion hole in a steel pipe, or a broken weld. It is seldom necessary to take a main out of service to repair a leak, even in a main carrying as much as 100 pounds' pressure.

How We Repair Small Leaks

A rather interesting and economical treatment of a myriad of small leaks in our old system, where the jute packing had dried and shrunk, was the injection into the main of Carboseal anti-leak liquid which would be absorbed by the jute and swell it. Various means of injecting the liquid were used. The liquid used had non-drying properties and was calculated to remain effective for an undetermined number of years. We found that in some cases it would reduce the leakage in a section of main by 60 to 80%. We used this treatment on mains under expensive pavement since few excavations were necessary to apply it.

More Expensive Methods

A more complete, but also much more expensive, reduction of leaks was obtained by applying leak clamps to jute- and lead-caulked cast-iron pipe joints. These clamps press a heavy rubber composition gasket firmly against the face of a joint. We prefer this type of repair especially where an expensive pavement is to be installed over a main. It is the only type of repair that we use on leaking cast-iron pipe joints in mains carrying pressures exceeding one pound per square inch.

In winter, the temperature affects the gas demand enormously. An average daily temperature of 65 degrees might give a daily demand of about 93 million cubic feet. A 30-degree average temperature might call for 167 million cubic feet, and, if, as has been experienced here occasionally, the temperature averaged zero, we might get a daily demand of 253 million cubic feet.

In order to be prepared we maintain a load-dispatching office. Dispatchers receive weather reports by phone and by teletype, calculate in advance the temperatures to be expected, calculate the gas demands for each hour, and, by cooperation with the pipeline company, learn how much gas will be available and decide how many industries will have to be curtailed to keep adequate gas for residential customers.

Propane—An Ace in the Hole

If the prospective demand is great, the dispatcher may decide that it may be advisable to make some propane-air gas. We have at our old gas plant 15 shiny steel tanks containing a total of about 360,000 gallons of propane. This will make 32.5 million cubic feet of propane-air gas of heating value equivalent to natural gas. This amount of gas is, of course, small compared with a demand of 253 million cubic feet, but might be just what is needed to get us "over the hill." We also have an oil-gas plant which can manufacture about 6 million cubic feet of gas per day. We also keep 4 million cubic feet of natural gas stored in gas-holders.

The Dispatching Office performs an-

Finding the lines is relatively simple with this electronic locator.

other function in controlling the pressure in the mains at various points in the system, some of them many miles distant. On a big gauge board are 95 recording and indicating gauges. These show the pressure at these various points. A desk in front of the board carries a large number of two-way switches. If the dispatcher wishes to raise the pressure a certain amount at a remote point, he throws a switch one way and holds it for a certain number of seconds, then returns it to neutral. If he wishes to lower the pressure, he throws the switch in the opposite direction, holds it a few seconds and then returns it to neutral.

At the receiving instrument in the controlled area, the apparatus works on a district pressure regulator, causing it to open or close by the necessary amount to give the pressure required.

Our installation is not yet complete, but it is being worked on as time and materials become available. Already it is demonstrating its reliability and making it possible for us to correct pressure conditions in distant as well as near-by areas before they can get so out of adjustment as to adversely affect the operation of customer appliances.

Customer Service Calls

The rapid growth of gas house-heating has made necessary a new type of serviceman. In the old days, half a dozen tools would suffice to adjust almost any appliance. Now, the fully equipped serviceman carries about 50 tools and other essential items in his car, and there are about 20 additional tools not regularly carried by him, but available for his use if needed.

Formerly a serviceman was trained solely in the field. He accompanied a trained man, watched him work, helped him, and sometimes acquired his bad as well as his good techniques.

Today we have a well-equipped training laboratory, containing a variety of typical appliances. Here an intensive course of instruction, under a competent teacher and with proficiency tests to bring out defects, is given to a small class of men at a time. This laboratory training is supplemented by training in the field. The result is the production of a better serviceman in a shorter time.

Radio Helps in Service Work

Our servicemen go from place to place in half-ton trucks equipped with utility bodies. Each car is equipped with car-to-car or car-to-station radio. Service calls from customers are received in our control room, which also receives calls of the Electric and Water Divisions. A sending set in the control room transmits service orders to servicemen in the field. About 16 cars are in use by our gas servicemen. Often a serviceman will be knocking on the customer's door a few minutes after a call is phoned in.

How Large Is the Memphis Gas Utility?

The foregoing outline of some of our activities may prompt some of our readers to ask, "How large is the Memphis gas utility and what are some of the facts about it and the area which it serves?" While the 1950 Census may give some different data, the Memphis Chamber of Commerce tells us that the 1949 population of Memphis was 349,000, and the population of Shelby County, including Memphis, was 390,353. At the end of 1949, we had 88,185 gas customers, 980 miles of gas mains, an annual gas sale of 25.9 billion cubic feet (23 times the sales of 25 years ago). The Gas Division of Memphis Light, Gas and Water Division has a physical property valued at a little over $12,000,000. It has some comfortable reserves and no bonded indebtedness.

This Gradall excavator can give a sound account of itself in all types of assignments from digging regulator vaults to trenching in difficult locations.

Abridged Building Code Available in Print

A PERFORMANCE TYPE building code prepared by the Building Officials Conference of America, Inc., has been published in abridged form for national use by communities which are principally residential in character and include the usual civic, commercial, and educational buildings essential to community life. The comprehensive Basic Building Code from which the abridgment was made is now on the press.

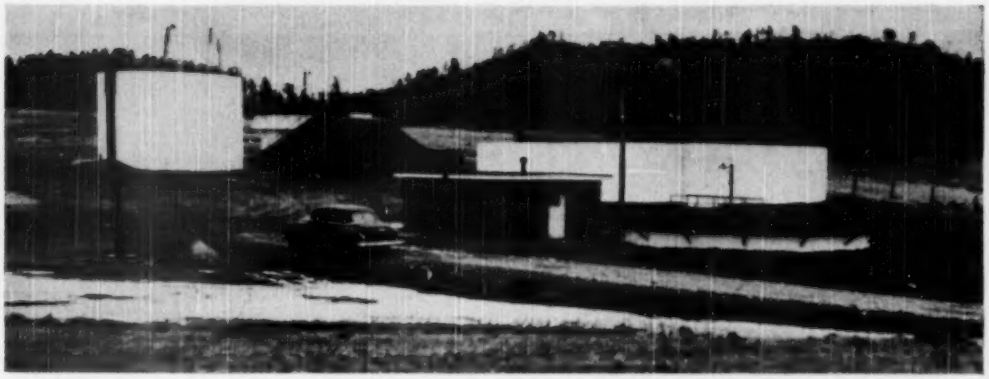
The Building Officials Conference of America, Inc., whose membership includes building officials representing over 80% of the country's population and whose duty it is to enforce building codes, has spent five years in creating the comprehensive Basic Building Code and the 118-page Abridged Building Code. The National Association of Home Builders supported the project, and its Building Code Committee collaborated with the building officials.

Aside from the code's suitability for adoption in all parts of the country, its most striking feature is that it employs performance requirements rather than detail specifications. The code states that "All new materials, methods of construction, devices and equipment shall be approved by the building official for use in buildings by the procedure herein provided when they are proved to be the equal of those specifically required by this code."

The code accepts all recognized standards of construction and specifications of material of authoritative technical agencies. All traditional materials and methods of construction are accredited, including steel, wood, and concrete, and the building official can approve all new techniques and materials that meet specified standards of performance.

Ninety building officials from all parts of the country contributed their time and service in preparing the data, which were correlated by George E. Strehan, New York consulting engineer. Albert H. Baum, St. Louis Building Commissioner, is chairman of the Basic Code Committee. Walker S. Lee, Commissioner of the New York State Building Code Commission, is chairman of the Abridged Building Code Committee. Albert H. Baum is president of the Building Officials Conference of America, Inc., and Walker S. Lee is past president.

The Abridged Building Code in its first printed edition is now available from the Building Officials Foundation, 51 East 42nd St., New York 17, at $3 per copy, paper-covered, and $4.50 per copy, cloth-covered. The Basic Building Code is available in the printed edition at $5 per copy, paper-covered, and $6.50 per copy, cloth-covered.



The new sewage-treatment plant, which protects a vacation spot from pollution, nestles trim and neat against the Black Hills background. From left to right are the digester, primary clarifier, trickling filter, and final clarifier.

How a Vacation City Built Its Sewage Treatment Plant

Custer, S. D., builds new plant able to care for varying vacation population and thorough enough to guarantee the sanitation of its adjoining streams and lakes

THE peak load is "people" for the sewage-treatment plant serving Custer, S. D. This little city in the heart of the beautiful Black Hills area counts 3,000 people during the winter months, and 6,000 to 8,000 during the summer when the tourists come to enjoy the fishing, boating, and swimming that the area with its streams and lakes provides.

The reasoning was simple to the officials in Custer. The peak load of people brings prosperity to the community. The people come because the area is clean and beautiful. They would not come if those lakes and streams became befouled with filth. As a matter of good business judgment, the wastes from their city should be kept out of the waterways.

Plant Design

To keep wastes out, the city called on the services of Julian Staven, Black Hills consulting engineer. He designed a plant able to meet that fluctuating load by using the time-tested design of primary clarification and trickling filters. This was submitted to the South Dakota State Board of Health whose Division of Sanitary Engineering promptly approved the design.

To record flows, the plant uses a Parshall flume with a 3-inch throat. The flume will measure flows as high as 600 gpm.

For the first step in the treatment, the plant uses an Infilco Griductor that macerates the large solids so that they can be removed conveniently in the settling basin. The Griductor has a bypass with a sloping bar screen to care for the flow if repairs are needed.

To get the sewage to the clarifier, Engineer Staven uses two Aurora pumps, placed immediately after the Griductor. The pumps take the sewage from a wet well and bring it to the primary clarifier. Each pump has a rated capacity of 300 gpm.

Dorr Clarifier

For primary settling, the plant uses a Dorr clarifier, 25 feet in diameter and 10 feet deep. For the secondary biological treatment it uses a trickling filter, 65 feet in diameter and 8 feet deep. The filter is equipped with a Dorrco distributor having four distributor arms. For secondary clarification, the plant uses a second Dorr clarifier, also 25 feet in diameter, but only 7 feet deep. The settled sludge goes back to the wet well where it is finally removed with the primary sludge. To make the final effluent discharged from the plant thoroughly safe, the plant utilizes a Wallace and Tiernan chlorinator that can apply chlorine at the rate of 5 pounds per 24 hours. The plant has a chlorine contact chamber that provides a 30-minute detention period. When the effluent leaves the plant, it has a residual of 0.4 ppm.

Vermiculite and Cement-Insulated Digester

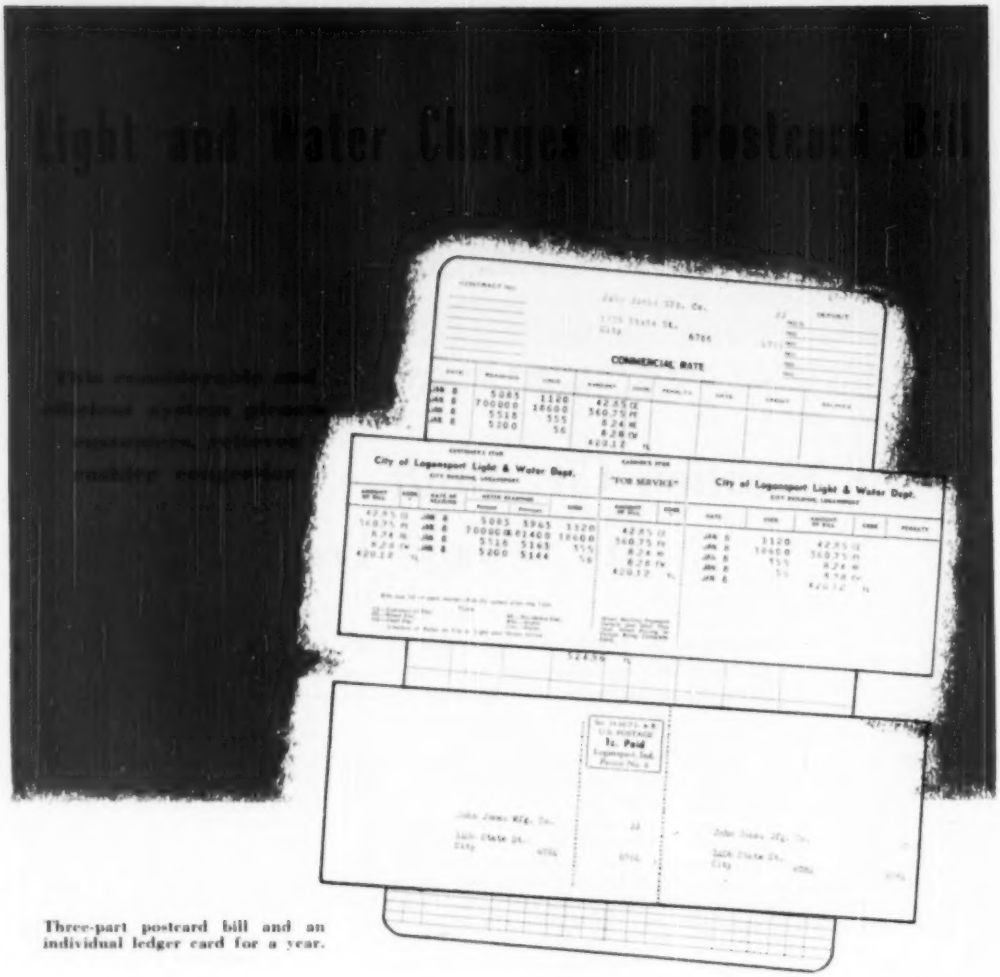
To handle the sludge the plant has a digester 25 feet in diameter with an effective depth of 17 feet. The digester is insulated with 4 inches of vermiculite and cement, and has a cinder-block outer wall. The digester uses the Dorr Multidigestion mixer to mix the sludge, and an exterior heat exchanger to provide heat for optimum digestion. A gas-fired boiler provides the heat. The gas is controlled by a Varec pressure and vacuum-relief unit.

Two Open Sludge-Drying Beds

The plant uses two open sludge-drying beds to dewater the sludge from the digesters. Sludge-bed drainage is returned to the wet well and treated with the balance of the sewage.

The plant is operated by Ray Stender, Custer's Superintendent of Sewage Treatment.

Light and Water Charges on Postcard Bill



Three-part postcard bill and an individual ledger card for a year.

By **ROBERT E. PRICE**
Superintendent Municipal Light and Water Departments Logansport, Ind.

UNTIL January 1950, the Electric Light and Water Department offices in Logansport, Ind., were characterized by long lines of consumers waiting to pay their bills.

In this typical midwestern city of 28,000, which owns and operates its own utilities, water and electric-light billing and payments were handled by two commercial departments occupying large separate first-floor quarters in the City Building. Each department was responsible for reading its customers' meters and handling individual billing, collections, and accounting. Bills were prepared separately and remained on file in the City Building, requiring the customers to remember the payment dates on their utility bills and their contract numbers when coming in to pay their bills, and stop at both the Electric Light and Water Department offices and make separate payments.

Department Merger

This unsatisfactory situation continued until 1948, when the writer became Superintendent of the Electric Light and Water Departments, and studies were instituted by the City Administration and his office to work out a more efficient system. The outcome was to combine the water and light service on one postcard bill and consolidate all office personnel of the two departments.

The customers like the new system. They are notified by mail as to the exact amount of their bills. This has resulted in 60% of the bills' being paid by check, greatly reducing congestion at the counter. Using Burroughs cash-control machines, two cashiers now handle all money received, where three clerks and three cashiers were needed before.

The long waiting lines have disappeared, even during rush periods, and Logansport light and water customers have expressed their satisfaction with the new arrangement. Improved customer relations alone are worth the changes that were made.

One of the major changes was a self-

Customers names, addresses, and account numbers are imprinted on the various related records by the new Addressograph automatic-feed equipment.

Customers at the offices of the Logansport Light and Water Department. The new Burroughs public-utility billing machines are in the background.

meter-reading plan for the 1,600 customers on country routes in the Logansport area. This has proved to be a convenient, economical, and successful method.

New Billing System

The primary change, of course, has been in the billing system. The post-card bill consists of the customer post-card bill and stub and the office stub. The bill is prepared on two Burroughs public-utility billing machines, which also do the cash posting. Each type of service is designated by initials, and the sum totaled by the machine. At the time of the billing a customer ledger sheet, used for a period of one year, and a journal are prepared. The city's new billing machines produce ten totals for various classes of service, as a by-product of billing.

The job of imprinting customers' names, addresses, and account numbers on various related records—the utility bills, ledger cards, and route-book inserts—is performed on the new Addressograph automatic feed equipment.

In a recent statement, George F. Muehlhausen, Mayor of Logansport, and General Manager of the Mechanical Spring Division of the Standard Steel Spring Company, characterized the installation of the new plan as "another forward step in the introduction of modern business methods in the civil city government."

City Decentralization And Regional Planning Urged by CIO

THE CIO Department of Education and Research has issued a new edition of its Program of Regional Development and Conservation, in a pamphlet entitled "The Foundations of Prosperity." This comprehensive program contains sections on Labor and Conservation, Renewable Resources, Forestry Policy, Soil and Range Conservation, Wildlife Resources, Fisheries, Pollution, Underground Water, Recreational Resources, Historical and Archeological Remains, Credit for Renewable Resources, Budget and Appropriations, Valley Authorities, TVA and Public Power, TVA and Unified River Management, Responsibility in River Management, Coordination of Regional Development, River Navigation, Flood Policy, Reclamation Policy, Water Diversion Projects, Force Account Construction, Contractors Lobbies, Public Purchase of Utilities, Development and the Indians, Alaskan Resources, Petroleum Resources, Metal Ores, Atomic Energy, Wind Power, Sun Power, City Decentralization, Small Town Development, Industrial Planning, Worldwide Conservation Problems, and Cooperation with Other Groups.

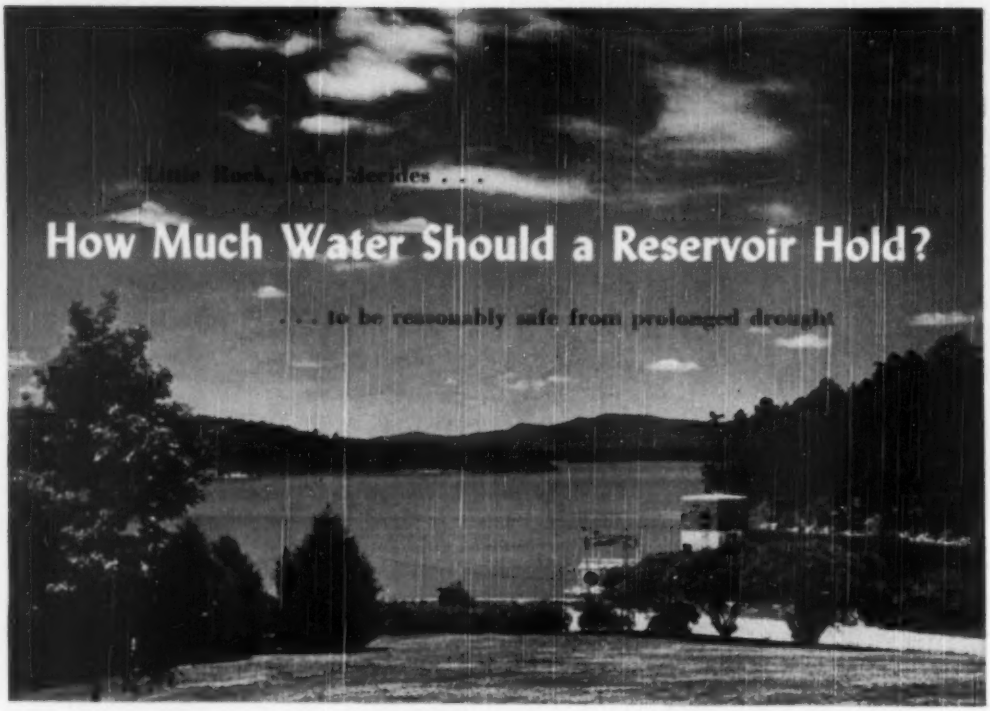
The section on City Decentralization points out that that problem has for many years been a fundamental part of the social program of the CIO.

The industrial workers of this country, says the Program, know better than anyone else the misery which comes from overcrowding in big cities. Our slum problem is in large part one of overcrowding. Congestion brings with it noise, dirt, darkness, disease, vice, and inadequate space for both indoor and outdoor recreation. . . .

Many of the conditions of life brought about in this manner are in the long run as serious as the immediate questions of wages, hours, and conditions in the plant. They involve the entire life of the worker, his family, his children, and his friends. They can be corrected only by social action.

We recognize that many decades or generations will be required to reverse the national trend toward undue city centralization. We realize that industrial dispersion must precede city decentralization. We point out that such dispersion is already necessary for purposes of national defense and is being brought about by high taxes resulting from congestion and by water-supply problems. . . .

All this means that agencies responsible for the disposition of public power, and the development of irrigation projects, the construction of highways, and the provision of housing, should handle their operations in such a manner as to build up our small communities and bring about the gradual opening up and spreading out of our large metropolitan centers.



From this vantage point, about one-sixth of Little Rock's Lake Winona is visible. The intake structure and the chlorination platform, which is designed to receive chlorine in ton containers, can be seen in the foreground.

THE question is: What factor of safety should be provided when establishing the safe yield of an impounding reservoir when only 70 years of rainfall records and only 10 years of runoff records are available?

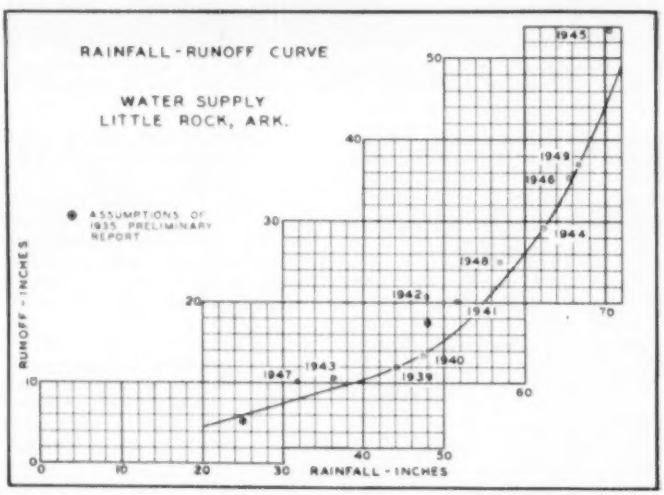
The answer is supplied at Little Rock, Ark., resulting from a study made jointly by the authors. In our opinion, such a reservoir should be ready to stand a four-year drouth period and still produce its safe design yield.

By R. G. KINKAID
and
GLENN E. HANDS
Burns and McDonnell, Engineers
Kansas City, Mo.

Well-Forested Drainage Area

Little Rock's raw-water reservoir draws from a 43-square-mile watershed and forms Lake Winona. This watershed lies almost wholly in the Ouachita National Forest and is covered by a thick pine forest. The lake itself covers approximately two square miles; and contains 14,000,000,000 gallons when at spillway elevation. The dam has a concrete spillway able to discharge water at a rate of 13,500,000 gallons per minute. The top of the spillway is 15 feet below the top elevation of the dam. Normally the watershed receives 53 inches of rainfall annually. The dam connects to the city through a 35-mile gravity pipeline. The water is clear and presents no silting problems, because of the fine condition of the watershed.

This supply now serves an estimated population of about 160,000, who use water at an average daily rate of 18



Rainfall-runoff records look like this at Little Rock's water-supply area.

mgd. Maximum water use is 18.3 mgd, and the reservoir has been in operation since 1939. The operation of the entire system has been under the leadership of L. A. Jackson, Manager-Engineer, ever since the city assumed responsibility for water service.

First Assumptions

When the reservoir was first constructed it was designed on the assumption that it would have to weather a drouth period of three years, and in this drouth the watershed would receive an annual rainfall of no more than 25 inches and an annual runoff of slightly more than 5 inches. This compares with an average runoff of 17½ inches from an average annual precipitation of 48 inches. At the time, this drouth condition was considered drastic, since the worst drouth on record was for a two-year period when the rainfall averaged 32 inches. At the time that the reservoir was built, the studies indicated that this reservoir would meet the needs of Little Rock for the next 40 years, if its growth were consistent and in line with past performance. However, this time schedule was thrown badly out of balance after 1940. In the past 10 years the demand for water has almost doubled. Two years ago, preliminary engineering studies were made that indicated the need for expansion of the filter plant to meet recent demands for extended service. These studies called for constructing four additional filters to provide an added 8 mgd to the plant, bringing the rated capacity to 23 mgd. The filter equipment was installed by E. W. Bacharach, Inc., of Kansas City, Mo.

This work was accompanied by 17 miles of pipeline construction to strengthen the distribution system, bringing the total pipe mileage to 312½ miles.

Engineering studies show that for an 85% depletion of the usable storage, the reservoir can provide a maximum safe yield of 26 mgd during a drouth period as severe as any on record. If the elevation of the dam were raised by 10 feet, the safe yield would be increased to only 30 mgd, and a period of 11 years would have to pass before the reservoir would be filled completely.

On the basis of these and other studies, it has been concluded that a four-year drouth period should be considered, and that about five years would be allowed for the development of a new source of supply complete and ready for use. By the time the average daily demand reaches about 20 mgd, definite plans should be made for supplementing the present supply, since before the five-year period has elapsed, the demand may approach 25 mgd.

Saratoga Springs Questions Its Citizens

By EVERETT V. STONEQUIST
Technical Consultant
Planning Board
Saratoga Springs, N. Y.

EARLY in 1950 over a thousand copies of the Planning Board's booklet, entitled "Saratoga Springs Looks to the Future," were distributed to a cross-section (25%) of the city's population. Each family interviewed was asked to read the booklet and then give its opinion on 15 major projects related to the city's future. A week later the interviewers (college students in sociology) returned to collect the questionnaires, 763 of which were completed and handed back. The results of this survey of 763 families from all sections of the city are below.

Many comments and suggestions were made on the survey. These comments reinforce the figures given below and show that an overwhelming majority of citizens support 14 of the 15 projects. The 15th project, relative to highways to by-pass the city, was not urged in the booklet but was included in the questionnaire as an alternative to the highway project connected with railroad relocation. Nearly half of those interviewed opposed a highway which would by-pass the city.

The students in the city's schools, grades seven through twelve, were also asked to study the booklet and fill out the questionnaire. This was done in the social-science classes. In general, the students had opinions roughly similar to their parents, but there were some important differences in emphasis. For example, while the adults considered new industries to be the most important need of the city, the students thought that enlarged and modernized schools should come first. Adults believed an improved bus terminal was the second most pressing need, but students gave slum clearance second place.

It is interesting to note that, in general, the adults of the city are more eager for immediate improvements than are the younger generation. The reasons for this are probably longer experience and greater knowledge.

The comments of the students showed that they were less interested in playgrounds than in recreational centers. The largest number wanted a YMCA; next came a swimming pool; third a roller-skating rink. Many felt the present Youth Center was inadequate.

Comparison of native-born adult Saratogians with newcomers showed certain differences in emphasis. The answers of the native born resembled those of the city as a whole, except that more opposed highways which would by-pass the city (59.2% in opposition compared with 47.2% for all residents).

The east and west sides of the city showed surprisingly little differences in opinion; negligible in fact. The people of the city seemed united in supporting 14 of the 15 projects outlined in the questionnaire, which confirms the Planning Board's objectives in publishing the booklet and listing the proposals.

	Needs first attention %	*Important, can wait* %	*Of lesser importance* %	*Not desirable* %
Promote new industries in the city	88.7	8.4	1.5	1.4
Promote improved bus terminal and reduce Broadway bus congestion	75.7	18.1	5.2	1.0
Establish more parking lots for business, church, and convention use	63.1	25.0	9.1	2.7
Enlarge and further modernize the schools	56.5	32.4	5.1	4.0
Promote slum clearance and redevelopment of deteriorated areas (Spring Valley)	57.5	31.4	9.1	2.1
Stimulate improved Broadway appearance	57.5	29.9	10.9	1.4
Stimulate modern housing and improved facilities in existing houses	57.2	29.5	11.3	2.1
Have special charges when water, sewage, etc., are extended to outside district	50.6	22.3	16.5	10.5
Improve sewage-pumping station	49.5	34.6	11.6	4.3
Relocate D. & H. R. R. and use roadbed for highway, especially for trucks	48.4	29.5	11.6	10.5
Widen narrow business-street pavements during the next 10 years	47.0	36.0	12.8	3.7
Add small playgrounds in north and south areas of the city	42.3	34.5	15.6	7.6
Reconstruct Village Brook Drain	39.0	40.4	15.5	7.9
Year-around use of Casino as community center	35.0	38.0	19.1	7.9
Promote highways to by-pass the city	27.1	16.2	9.5	47.2

Sewer – Service Charges

For City-County Sewerage Project

A COMBINED program of nearly $13,000,000 to eliminate stream pollution in northern Delaware is approaching the construction stage. Under the recommendation of the consulting engineers, approximately $10,400,000 will be financed by sewer-service charges both in Wilmington and the surrounding areas of New Castle County. The entire program is Delaware's first answer to the "Incodel" pact, and will parallel similar efforts now being carried out in Philadelphia and elsewhere on the Delaware River to abate stream pollution. Designed to provide a single-treatment plant of 40 mgd initial capacity in Wilmington, with discharge to the deep waters of the Delaware River, the project will permit the abandonment of several small and inadequate treatment plants, and avoid the contamination of the Brandywine and Christina Rivers in and beyond the city limits.

The cost of the program has been developed as follows:

• City of Wilmington	$ 8,400,000
• New Castle County Interceptors and Pumping Stations	2,000,000
• New Castle County Trunk Sewers	2,500,000
	$12,900,000

The county trunk sewers in the amount of $2,500,000 are to be included in a general county program to be paid for on a front-foot assessment basis; the remainder in the amount of $10,400,000 is to be included under sewer-service charges. Under the proposed arrangement, the water bills will be the basis for computing sewer charges. In the City of Wilmington it has been estimated that sewer charges to the extent of about 50% of the municipal water bill will be sufficient to finance the project; and for the county areas, because of the differing water rates of the several water companies, it has been suggested that a uniform rate be established for all customers beginning with a minimum charge of $3 per customer per quarter, based on a charge of 10¢ per 1,000 gallons. It has been considered that the most efficient and economical way to collect sewer charges would be to have them included on the water bill either by the Water Department of the City of Wilmington, or by the private companies serving the county areas.

By A. R. VOLLMER, *Partner Whitman, Requardt and Associates Baltimore, Md.*

For the City of Wilmington, the suggested table of sewer-service charges is given below:

Minimum sewer service charge, $1.75 per quarter

Gallons per Quarter	*Per* 1,000 *gals.*
0 to 15,000	0.070
15,000 to 37,500	0.056
37,500 to 150,000,000	0.0515
150,000,000 to 375,000,000	0.032
375,000,000 and over	0.0133

(5% discount to be allowed for prompt payment)

The sewer-service charge is one-half the corresponding water bill up to 150,000,000 gallons per quarter, which includes the largest municipal water customer. The sewer charges were extended to cover additional brackets because of large volumes of contaminated waste originating with private water supplies.

The minimum water billing of $3.50 per quarter, or $14.00 per year, less discounts, allows the use of 27,500 gallons per quarter. Accordingly, for the typical domestic customer using about 50 gallons per capita per day, or a total of 225 gallons per day, the minimum sewer-service charge will be ample.

For New Castle County the suggested table of sewer-service charges is given below:

Gallons per Quarter			*Per* 1,000 *gals.*
0 to	30,000	(minimum) $3.00	
30,000 to	300,000		.10
300,000 to	900,000		.09
900,000 to	3,000,000		.08
3,000,000 to	9,000,000		.07
Over	9,000,000		.06

(5% discount to be allowed for prompt payment)

For the majority of domestic customers in the county, the minimum charge of $3 per quarter or $12 per year, less discount, will apply.

The comparable water bills for consumers in New Castle County are a minimum charge of $7 per quarter from the three principal suppliers. For the minimum charge, the Artesian Water Company allows 10,000 gallons per quarter, the Suburban Water Company 18,000 gallons, and the City of Wilmington 27,500 gallons. The ratio of sewer charges or water bills in the county areas is accordingly below 50%.

For purposes of initial financing, it has been suggested for Wilmington that equal amounts of revenue and general-obligation bonds be sold. This procedure is worth consideration, because the program of $8,400,000 for sanitary improvements is approximately 5% of the assessed valuation, and if it were attempted to sell the entire issue as general-obligation bonds, the interest rate might increase for future issues. In order to avoid any possible adverse effect on the credit rate of the city, it has been suggested that about 50% or less of the issue be sold as revenue bonds. For the areas in New Castle County, however, the sanitary-improvement program in the amount of $2,000,000 is only 1½% of the assessed valuation, and there are now outstanding bonds to the extent of 1.8% of the county's assessed valuation. Under these circumstances, it is believed that the county should take advantage of the lower interest rate afforded by general-obligation bonds. Under either scheme of financing, sewer rentals will be adopted to pay the fixed and operating costs.

City of Wilmington—Annual Costs

Fixed Charges:		
Average amortization $8,400,000 in 30 payments		$280,000
Average annual interest—general obligation bonds, 1% of $4,200,000		42,000
Average annual interest—revenue bonds, 1¼% of $4,200,000		52,500
Average total fixed costs		$374,500
Operating Costs:		
Power generation	$20,000	
Labor	30,000	
Maintenance	10,000	
Miscellaneous	20,000	
Average total operating costs		80,000
Estimated annual expense		$454,500

City of Wilmington—Annual Revenue

Sewer rentals—50% of net water revenue	$335,000
Revenue from private sources of water supplies contributing sewage	100,000
Revenue from county	67,000
Estimated annual revenue	$502,000
Excess revenue for contingencies	47,500

It must be recognized that the sched-

Wilmington and New Castle County, Del., join forces to build interceptor sewers and treatment plant designed for entire drainage basin. Finances to be supplied by sewer-service charges equal to 50% of the water bill.

ule of costs and revenues are preliminary and tentative, and have been developed to demonstrate a method by which the program can be financed using recognized ways and procedures. Since the fixed charges and operating costs, as well as the revenues, contain many variable items a revised schedule may have to be prepared when the various items become better known. It is believed, however, that a policy of fixing the sewer-rental charge at 50% of the charge for water should be adequate, regardless of the effect of the variable items. It is to be noted that the amount of contingencies in the estimate of annual revenue is approximately 10%, or $47,500, which will allow a considerable fluctuation in the amount of revenue from the several sources.

A construction program of 36 months has been set up and coordinated to the issuance of bonds, so that there will be sufficient moneys to pay for construction estimates as they become due, and at the same time avoid interest payments on idle capital. The sewer charges will become effective upon the issuance of any bonds, so that some revenues will be used for construction or other charges.

New Castle County—Annual Costs

Fixed Charges:		
Average amortization $2,000,000 in about 30 payments		$ 67,000
Average annual interest — general obligation bonds, 1¼% of $2,000,000		25,000
Average total fixed charges		$ 92,000
Operating Costs:		
Power, labor, maintenance and miscellaneous	$20,000	
Charges for sewage treatment by City of Wilmington	67,000	
Average total operating cost		87,000
Estimated annual expense		$197,000

New Castle County—Annual Revenue

11,000 customers at $12 minimum charge	$132,000	
Residential customers exceeding minimum	9,000	
Commercial and industrial 1.7 mgd at 6.5c per 1,000 gals.	40,000	
City of New Castle	7,000	
State institutions	2,000	
Estimated annual revenue		$190,000
Less 5% discount		10,000
Estimated net revenue		$180,000

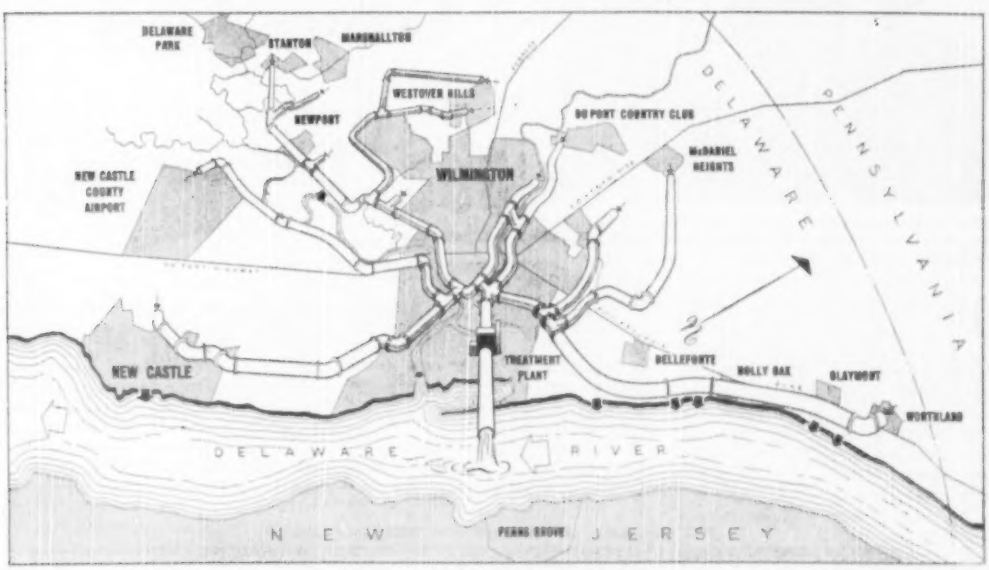
As noted in comments pertaining to the City of Wilmington, the costs and revenue for New Castle County are preliminary and must be definitely fixed as the various items become known. It has been assumed that the charges will be made by the city for receiving sewage from the county areas will be charged as a single billing by adding all of the separate meters that may be used to measure flow. Furthermore, the city and county have initiated agreements for the handling of sewage where the city has previously constructed sewers serving the county. It is proposed that the construction and the maintenance of sanitary facilities be fixed on the basis of the corporate limits of the city. All work done outside of this line will be constructed and maintained by the county.

The major construction items are contained in the following outline:

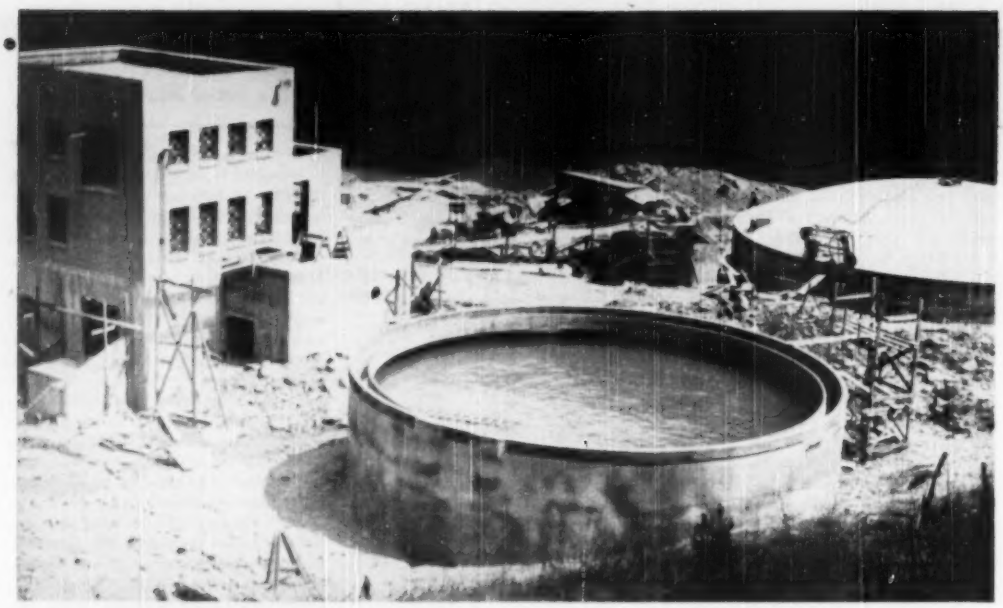
City of Wilmington

5 Interceptors, 18" to 78"—43,000 l. ft.
1 Pumping station, maximum capacity 160 mgd
1 Force main and plant outlet, 72" and 84"—10,000 l. ft.
1 Sewage-treatment plant, primary type, initial capacity 40 mgd.

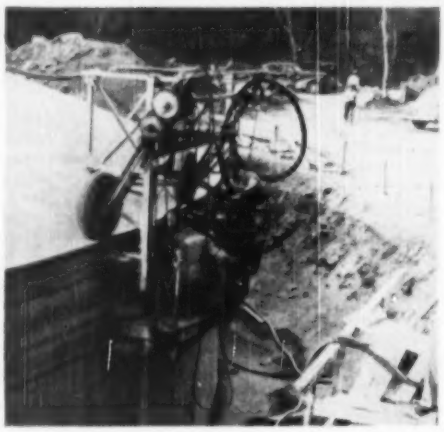
(*Continued on page* 171)



The proposed sewerage system for Filmington and New Castle County, to be supported by service-charge financing.



The treatment plant near completion. At left is the chemical building; the clarifloculator is in the center, and the clear well is seen to the right.



This moving carriage places the wire reinforcing around the concrete shell. Later a concrete covering is gunited over the wires.

The Filter Plant Comes First

By GLENN E. HANDS
and
EDWIN J. RUNYAN
Burns & McDonnell Engineering Co.
Kansas City, Mo.

THE City of LaFollette, Tenn. (population 5,600), has faced a perplexing water-supply and treatment problem for the past 20 years. It now, however, has adopted a program of improvements that will, when completed, assure the city of an adequate supply of pure mountain water, low in hardness and relatively free of other objectionable chemicals.

The total program of improvements includes:

1. Construction of a new water-treatment plant of 1 mgd capacity to replace a 40-year-old plant of 100 gpm (.15 mgd) capacity, constructed of wooden tubs and filters, and in poor condition.

2. Construction of a dam 60 feet high, and a reservoir impounding approximately 460 acre-feet (150 mg) of water to replace an existing dam 20 feet high, impounding approximately 40 acre-feet of water.

3. Laying of a new supply main 12 inches in diameter, from the reservoir to the water plant, and from the water plant to the city, to replace and supplement an existing 8-inch main.

4. Laying of new mains within the city for serving new customers more adequately.

The proposed 460 acre-feet reservoir is to be at the location of the present reservoir, only 1½ miles from the city. The area of the watershed above the dam is 13.5 square miles. The creek, with the aid of the present dam which is only 20 feet high, runs almost continuously throughout the year, and in some years the runoff is adequate for the needs of the city. During the summer and fall months of the dryer years, however, a shortage of water is experienced, and restricted usage is required. A few wells augment the supply during the dry cycle, but are limited in capacity. When the proposed reservoir is constructed, the supply will

LaFollette, Tenn., replaces old wood-tub filter plant with one of modern design and adequate capacity. New impounding reservoir is scheduled for a later date

be adequate for a doubled population and will afford 75% more usage per capita.

While the improvements now under construction do not alter the supply problem, they do eliminate serious problems of treatment and distribution, and will assure increased revenue to the department for financing the total project.

Per Capita Use Low

The city does not yet have a complete sanitary sewer system and, as a result, the average per capita use of water is low, with the meter sales amounting to only 27 gallons per capita per day. It has been necessary to raise the rates in order to finance the project now under construction. The present rates may or may not be adequate to complete the project, depending upon the number of customers added to the system within the next five to ten years, the availability of federal aid, and the financial status of the department. The present policy of the department is directed toward the increase of revenues by the addition of customers to the system, and the practice of rigid economies in the operation of the system, so that the department can present a favorable financial prospectus within a few years.

The water rate schedule prior to construction was as follows:

Minimum, $1.50

	Per 1,000 gals.
First 2,000 gals. per month	75c
Next 18,000 " " "	50c
Next 20,000 " " "	40c
Next 20,000 " " "	30c
Next 20,000 " " "	20c
Balance	16c

The revised rate schedule is now as follows:

Minimum, $2.70

	Per 1,000 gals.
First 3,000 gals. per month	90c
Next 17,000 " " "	60c
Next 20,000 " " "	45c
Next 20,000 " " "	35c
Next 20,000 " " "	20c
Over 80,000 " " "	15c

At the time the water-rate increase was recommended (1947), the funds from the new rates would have financed the entire project nicely, but as we have since learned, construction costs had not yet been stabilized. Further study indicated that the city might not be able to finance the entire project.

To play safe financially, it was decided to construct facilities now which would contribute revenue, even though shortages of water may be experienced periodically. Therefore, the construction of improvements in the distribution system was given first priority, and the water plant and dam were given second and third place, respectively.

The water-treatment plant is now completed and in operation, and has several unique and interesting features. The plant is designed primarily for color and turbidity removal, as well as sterilization and pH adjustment.

Treatment Provided

It provides for prechlorination, coagulation with filter alum, and pH adjustment by the addition of lime following filtration. The turbidity is removed in a single Dorr clariflocculator basin, 50 feet in diameter. The water, with the chemical added, is released at the center of the tank. It passes through a zone of the tank where paddles gently agitate the water to form the desired floc. The water then passes into the quiescent zone where the floc is settled out and scraped to the center sludge hopper. The sludge is removed through a disposal line.

From the clariflocculator the water flows to the filters. The water applied to the filters is sterile and clear. The filters remove the last trace of turbidity. Each of two filters has a rated capacity of ½ mgd at the standard rating of 2 gpm per square foot; but in keeping with modern practice, they can be operated at double this rate.

The filters use pre-cast Wheeler bottoms furnished by Builders-Providence, Inc. The sand used has an effective size of not less than 0.4, and not more than 0.5 mm. The filter valves are operated by hand wheels on floor stands—a system suitable for small plants such as this. The valves operate quite easily. The filters use Builders-Providence rate-of-flow controllers.

The filters are backwashed by the means of a wash-water pump drawing water from the clear well and discharging it to the underside of the filters. The filters can be backwashed at a 36-inch per minute rate of rise if desired, although it has been found that a thorough washing is accomplished at a 27-inch per minute rate of rise.

The plant uses Omega chemical feeders. The chemicals are received in bags and are handled by an electric hoist operating on a monorail.

The plant has pre-chlorination facilities sufficiently large to supply a residual of chlorine through the filters. This is provided by a Wallace and Tiernan chlorinator of 40 pounds per 24-hour capacity.

Water flows by gravity from the reservoir through the treatment plant to the clear well. The treated water is pumped to the city through Worthington turbine-type pumps installed out of doors at a wet well adjacent to the clear well. In addition to the high-service pump, a fire pump is furnished to augment the fire storage provided in city reservoirs. Fire flows and storage, designed to meet the National Board of Fire Underwriters' requirements, is provided.

The clariflocculator and clear well were constructed of prestressed concrete. This involves the use of high-tensile-strength steel wire wound under tension spirally around the tank. The previously constructed concrete cylinder of the tank is thus put in compression so that cracks cannot form when it is filled with water. The spacing of the wires and their tension are carefully controlled during the winding process, so that wires, rather than the concrete, carry the bed.

The walls of the clear well and clariflocculator, and the dome of the clear well, were constructed of gunite concrete. The concrete is very dense, uniform, and neat. The compressive strength of gunite concrete averages 8,000 to 10,000 psi as compared to poured concrete of 4,000 psi. Honeycombing is no problem. The core walls of the basin and clear well were only 5 and 5½ inches, respectively, in thickness as compared to poured concrete walls which would have been 12 inches in thickness. Comparative bids indicated a saving of approximately 5% in the construction cost.

The economy is effected in the saving of concrete, reinforcing steel, and form work. Although the gunite concrete is more costly per cubic yard, the thinner sections and the use of only one form wall upon which the gunite is plastered results in savings enough to offset the extra cost of the concrete. The wire is more costly than reinforcing steel, but because of its greater strength, further savings are realized.

The improvement was made possible through the activity of R. C. Allen, Mayor; C. H. Russell, W. H. Parrott, G. H. Lovely, G. A. Wilson, City Commissioners; R. L. Sharp, Chairman; W. G. Howe, R. E. Shelby, and Smith Rea, Manager, all of the Utility Board.

Fire Apparatus

STANDARDIZATION

STANDARDIZATION of fire apparatus has been a live subject for many years. The most practical approach has been in the form of two authoritative specifications: those of the National Board of Fire Underwriters and the International Association of Fire Chiefs, and those of the National Fire Protection Association. About 60% of the fire departments use one or the other of these sets as a basis and framework for their purchase orders. It is said that about 40% of the municipal fire departments prepare their own specifications.

BOTH the joint NBFU-IAFC specifications and the NFPA specifications are *performance* specifications. They are not design, construction or equipment specifications. In meeting specified engine and pump performance, a wide variation in design is permitted with the result that (1) every standard fire-engine manufacturer has his individualized line of pumping engines, and (2) every model of his line is capable of more or less revision to suit the ideas of each customer. Thus, even with the best performance specifications, fire-apparatus manufacture continues to some extent to be a custom-building industry.

The standardization required by the specifications is in engine output and in pump output, with a time factor (such as 1,000 gpm for a period of 8 hours) to establish dependability. Fifteen or twenty different makes of motors and pumps can meet the requirements. Thus there is little if any interchangeability of engine and pump parts among the different lines of pumping engines. You don't stock parts for a 1,000 gpm pumping engine. You must stock parts for a particular 1,000 gpm pumping engine.

Good Reasons for This

The foregoing is set forth in explanation, not in criticism. Rigid standardization often puts creativeness and progress in a straitjacket. As an example, some time ago a certain city decided to standardize on a wheel so that all city-owned automobiles would have the same type of wheels on all the vehicles, and would be interchangeable. To attain this the disc of the wheel and the bolt circle must be of certain dimensions. If an axle or wheel manufacturer came along with a more efficient design, the city would not use it.

Similarly, engine design is intended toward wringing more power from a gallon of gasoline. At present the utilization is 12% against 5% 50 years ago. This effort must not be stopped or discouraged by freezing selections to a present design. The result of this effort is continual improvement and change in the combustion chamber, piston head, cylinder head and compression ratio. Similarly, also, the efficiency of the centrifugal pump is being improved.

Basic Elements of Equipment

Any piece of fire apparatus consists of three principal elements: (1) chassis and engine; (2) pumping equipment, and (3) body, seating arrangement, tank, and equipment carried. There are a dozen makes of chassis, motors and pumps and an almost infinite selection of bodies. The best specifications anywhere permit a liberal choice of these makes. Thus the standardization, at most, will be in performance and arrangement of elements rather than in identical equipment. This, of course, cannot result in standardization of parts stocked by fire departments: tires, wheels, axles, motor cylinders, radiators, valves and valve springs, transmissions and differentials, and impellers for pumps. All these may be different every time where motor and chassis are purchased from a distributor.

War-Time Standardization

During the 1941-45 war most of the fire apparatus delivered to the various branches of the government that could obtain priorities were pretty well standardized as to class or type used by the various armed services. They did not, however, try to standardize on the production of a certain motor or of a certain pump. Had they done so, delivery of equipment would have been seriously curtailed instead of speeded up, because many manufacturers would have had to re-tool as well as redesign the machines.

A Free-for-All Above the Chassis

It is probably seen that little if anything can be done today toward further standardization of the chassis. The little would consist of sufficient agreement on body layout and requirements for a fire truck of given capacity to permit the particular manufacturer to use a standard chassis for all his trucks of that capacity.

Specifications start with some such provision as "the apparatus shall be constructed with due consideration to the nature and distribution of the load to be sustained." It is evident that the chief's plan for a body, which is wide open to his preferences, will determine the design of this first step, and make it "special" at the very start. To give further point and proof of this, the specifications says: "The apparatus shall be so designed and the equipment mounted with due consideration to distribution of load between front and rear axles, and so that it will carry *all specified* equipment including the filled water tank (what size), and a full complement of fire hose (how distributed), and 8 men (how seated) without injury to the apparatus." Italics and parentheses are ours.

Reading along in these specifications the patient fire chief—of dominant personality, ideas or a desire for fame—reaches item 21, and pauses. "The

wheels shall be of the steel-spoke type, or steel-disc type." Here is a choice. Here he can begin to display his preferences.

The competent and conscientious chief will not go out of his way to specify expensive diversions. But some unhappy experience may cause him to believe that toe axle sousing should clear the road by a foot instead of the 8 inches specified. Maybe he wants the bottom of the steps higher or lower than "14 inches."

Shall there be a windshield, cab or closed body? An existing type of cab or something special? Item 28 says: "Purchaser shall indicate the number and location of hose compartments and the amount and type of each size of hose to be carried in each compartment." Here indeed is an invitation to obtain what experience dictates, or at least a way of expressing individuality. It keeps bodies in the custom-built class.

How It Works Out

"Equipment holders shall be as the purchaser may desire." One may say "and why not?" The fact is that tools, playpipes, etc., are quite standard and might come as a standard kit placed in a standard arrangement.

The specifications call for a 100-gallon water tank "Unless otherwise specified by the purchaser." Ladders may be of wood, steel or aluminum.

Without mentioning any names, let us consider how this, perhaps necessary, situation has worked out in specific instances. Let us take one pumping-engine model of a certain manufacturer and see what the municipalities and their fire chiefs did to it in some of the orders received in 1948. Many of the special features requested could be made standard practice if a goodly number of chiefs specified them. They do not do it, however, and these are special requirements costing from $15 to $2,100 each.

Economy Through Standardization

Again, this article is in no sense intended as a criticism. The intent is to spread out the fire-apparatus-standardization subject and suggest some matter for thought. Every one of the variations by the 22 foregoing municipalities was dear to the heart of some fire department. Maybe most of them could be shaken down and sifted into a pumping-engine body of pretty well standardized design.

Money could be saved although the exact amount is uncertain. One manufacturer says he doubts whether the saving would amount to more than 2% of the cost of the fire truck. Another manufacturer claims flatly that the saving would be between 10 and 15%. Beyond the economy to be achieved, there would be a noteworthy simplification in ordering, bidding and use of a fire-fighting tool of nationally accepted design.

If there can be majority agreement on what constitutes a nationally acceptable pumping engine of 500-750-1,000 and 1,250 gpm capacity each, there will still be the need for certain variations. One of these will be the size of the booster tank. One town blessed with many pine trees and field fires might require an off-the-road truck, carrying 1,000 gallons of water. There would also be opportunity for the development of broader-purpose pumping engines, for instance, permitting the use of high-pressure fog, wet water or liquid foam, as well as furnishing its regular capacity at Underwriters' rating.

It would be interesting to know whether fire chiefs of class A cities, for example, could agree on the "ideal" pumping engine being the 1,000 gpm with a 200-gallon water tank and a hose body to carry 1,500 feet of 2½-inch hose, and so many lockers of these stated dimensions, and the seating arrangement being thus and so? Other figures could be 750 gpm, 350-gallon tank, 1,000 feet of fire hose, nine- or six-man cab. Similar agreements of this nature could be reached by medium-sized cities, smaller cities and rural departments.

A Very Small Representative List of the Specialties Demanded Currently By Fire Apparatus Purchasers

1. **Specified sanders to give traction on slippery streets. The sand box means hand work. Semi-cab also specified.**
2. **Called for streamlined cab, all hand made. A booster reel at the side. Locker at rear because reels are on sides. Rear windshield. Special boxes, both deep sides, to carry 1½-inch hose at side and special plumbing. Siren on side of cowl.**
3. **Instead of window in back of cab, a recess was specified as a platform to carry lights. Side box for floodlight generating plant. Reels on top. Rear suction connection. Tank, 500 gallons. Standard ladders on left side and special ladders on right side. Siren on top.**
4. **Suction hose mounted around front of engine.**
5. **Extra discharge gate at rear.**
6. **Double coat and boot rails for wrapping coats around rail and boots upside down.**
7. **Four-door cab all hand made. Special rear filler for booster tank.**
8. **2½-inch side suction gate.**
9. **Special faucet for filling Indian pump tanks.**
10. **Mars light on top.**
11. **Siren and red marker lights streamlined into roof; all hand work.**
12. **"Subway hand grips" at rear.**
13. **Special reducing valve on discharge gate.**
14. **Two reels on top with chrome-plated reel ends.**
15. **One top reel with usual painted end.**
16. **Box-type strainer for suction hose, instead of standard cylindrical type.**
17. **Two discharge gates at rear.**
18. **Three-door cab.**
19. **Canopy cab, back seat reached by center aisle through the body. Floor in aisle is hinged because 1½-inch hose is under the floor. Metal hinged covers over the hose body.**
20. **Ladder on top in an enclosure.**
21. **Ladder in middle of body in tunnel under rear seat. Rear suction.**
22. **Revolving booster hose basket on top. One-man suction hose always coupled to pump by a swivel connection. Gage for each discharge outlet.**

Waterloo's

Sanitary-landfill disposal plus efficient, thorough collection procedures give this city's sanitation program state-wide recognition

By CARL FAGERLIND
Street Superintendent
Waterloo, Iowa

Dragline keeps open a 14-foot trench as tractor compacts and covers the refuse.

PUBLICATION of information and data compiled by the Iowa Taxpayers Association of Des Moines, resulting from a survey conducted for the purpose of determining the per capita cost of municipal sanitation operations, gave Waterloo credit for having developed a highly efficient sanitation system at a commendably low per capita cost.

What system of garbage collection do we have in Waterloo?

What method of disposal do we use?

What kind of equipment is used?

All are natural questions which have been asked about our methods of operation as a result of this publicity.

In this article I shall attempt to answer these questions and include other pertinent data and information about our sanitation operations, which serve a population of 72,500 people.

Garbage Collection

Collection of wrapped garbage and empty bottles and cans are made from residences twice a week in the summer and once a week for the rest of the year. No collections are made from hotels and restaurants. These are handled by private contractors.

Ashes and other refuse are not collected by the Sanitation Department. Disposal of such material is the responsibility of the property owner and is handled by private contractors.

Collection Foreman William Masset reports that emergency calls have been reduced to three or four per day.

During the last fiscal year (April 1, 1949, to March 31, 1950), a total of 37,790,000 pounds (18,895 tons) of wrapped garbage and empty bottles and cans was collected.

Seven active trucks (1½- and 2-ton

Collection crews like the low loading point that the covered trucks provide.

Garbage Program Is *Tops* in Iowa

rated capacity) and one stand-by unit handle the collection service.

The seven active trucks are equipped with Heil Colecto-Pak refuse bodies, holding 9 cubic yards. They are fully enclosed, compressor-type units. Our collectors like to work with these efficient, simple-to-operate bodies because they are equipped with a rear receiving bucket that has a loading height of only 34 inches. This design eliminates strenuous and dangerous high lifting when garbage baskets are dumped into the bucket or hopper.

After the receiving bucket is filled, it is dumped into the Colecto-Pak body by hydraulic action operated from the truck cab. At the same time this hydraulic action compresses the load of wrapped garbage. Our figures indicate that 18 cubic yards of this garbage can be carried in the 9-yard body. Incidentally, the total cost of replacement parts for the bodies, which we have operated since 1946, has amounted to only $200.

The tractor-dozer pushes loose garbage into the trench.

Sanitary Landfill Area For the Future

Through the foresight of our city officials, a plat of 400 acres has been acquired well away from populated areas. This will provide ample disposal area for many years to come. And after a reasonable length of time has elapsed, this same ground may be used for repeated sanitary-fill operations.

Trenches 14 feet deep are dug with a ¾-cubic-yard Lorain dragline. Each day's collection of garbage is pushed into such a trench, and after being thoroughly compressed by a 60-hp International tractor-dozer unit, this same equipment is used to make a deposit of a 6-inch layer of dirt covering over the compressed garbage. After the 14-foot trench is completely filled in this manner, a top fill of 18 to 20 inches of earth is pushed over the trench and tamped down by the tractor-dozer unit. Only one trained operator is required to operate both the dragline and the tractor-dozer on the sanitary fill. During the winter months this same operator performs snow-removal operations, so he is kept busy at the sanitary fill only about 70% of the year.

Experience has demonstrated that when compressed garbage is covered with at least 18 inches of compressed-earth fill, the presence of rats and other rodents is eliminated. Some of the added advantages of our method of handling the sanitary landfill are the absence of flies, spontaneous-combustion fires and odors. Trench excavations provide extra dirt for road repairs; stockpiling of cinders on top of the sanitary fill keeps the cinders from freezing so they are always available for spreading on slippery winter streets. Then, too, our dragline and tractor-dozer are available about 30% of the time for various types of street repairs and maintenance.

Incentive System

Probably one of the most important factors which has enabled us to develop an efficient operation is an incentive system for the drivers and collectors. Under this system each collection crew of one driver and two collectors is assigned a definite area for each day's collections. As soon as they have completed the collections for this area they receive credit for a full day's work. On many days they may finish up in 6 or 7 hours instead of putting in the full 8-hour period. In the summer time, by their own choice, our collectors start working as early at 4 or 5 o'clock in the morning in order to finish up early in the day.

The following tabulation of data will serve to answer many questions which are of vital interest to public health officials.

WATERLOO, IOWA, GARBAGE COLLECTION AND DISPOSAL

OPERATING BREAKDOWN

(April 1, 1949, to March 31, 1950)

Population	72,500
Area (square miles)	32 sq. miles
Miles of streets	290 miles
Miles of alleys	45 miles

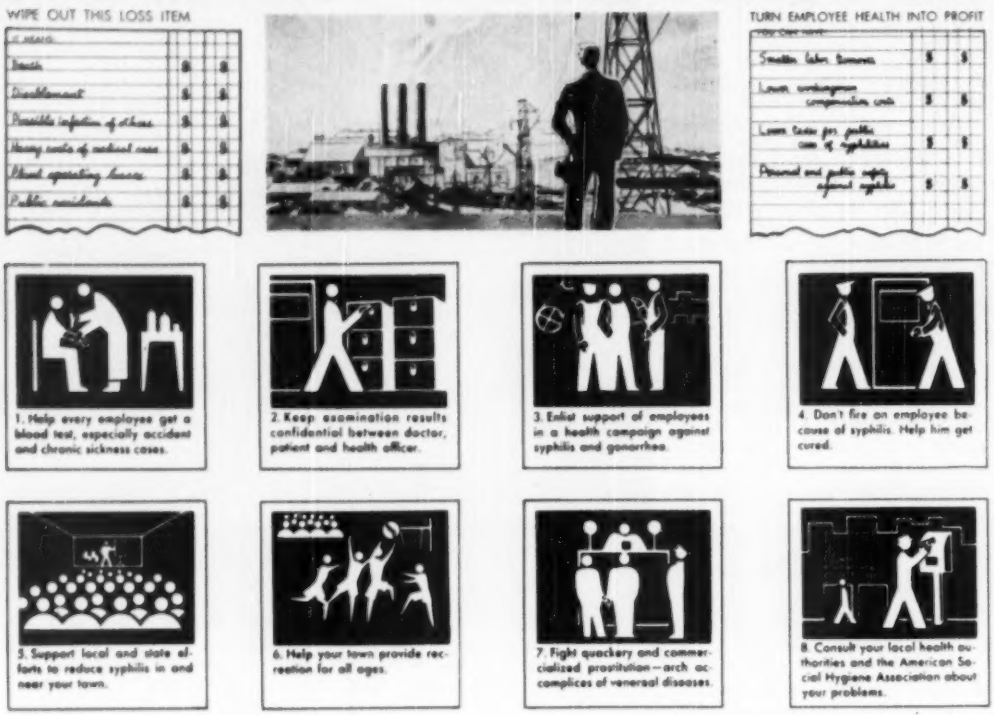
Garbage Collected

Residential (wrapped garbage)	18,895 tons
Type and size of containers	No limit
Collections weekly	1 in winter, 2 in summer
Picked up at back door and alley	
Collection vehicles used	7
Operating cost	$ 4,111
Truck drivers employed	7
Wages	$16,796
Collectors employed	14
Wages	$32,560
Average length of haul	3 miles
Collection costs, residential	$53,469
Cost per ton	$2.83

Garbage Disposal

Method Used—Sanitary landfill	
Equipment used—¾ cu.-yd. dragline with 40-ft. boom, and 1 60-hp crawler tractor equipped with hydraulic dozer	
Operating cost of equipment	$470
Number of men employed	1
Wages (70% of 1 man's time)	$ 2,261
Total	$ 2,731
Disposal cost per ton	$ .14
Total cost, collection and disposal—	
All garbage	$56,200
Per ton	$2.97
Per capita	$.77½
How frequently are vehicles—	
(a) Serviced for mechanical adjustments and greasing—Oil and grease once per month, other service as required	
(b) Washed—Daily	

Social Hygiene Is Good Business


WIPE OUT THIS LOSS ITEM
Death
Disablement
Possible inflation of claims
Heavy costs of medical care
Plant operating losses
Public accidents
TURN EMPLOYEE HEALTH INTO PROFIT
Smaller labor turnover
Lower workmen's compensation costs
Less taxes for public care of syphilitics
Personal and public safety against syphilis
1. Help every employee get a blood test, especially accident and chronic sickness cases.
2. Keep examination results confidential between doctor, patient and health officer.
3. Enlist support of employees in a health campaign against syphilis and gonorrhea.
4. Don't fire an employee because of syphilis. Help him get cured.
5. Support local and state efforts to reduce syphilis in and near your town.
6. Help your town provide recreation for all ages.
7. Fight quackery and commercialized prostitution—arch accomplices of venereal diseases.
8. Consult your local health authorities and the American Social Hygiene Association about your problems.

COURTESY OF THE AMERICAN SOCIAL HYGIENE ASSOCIATION, INC.

Syphilis is bad business—
adequate budgets for public-health services to eliminate venereal disease can save much misery for individuals, and much money for the taxpayers

IN THE field of social hygiene, the proverbial ounce of prevention—an effectual public-health budget—is worth far more, in forestalling human suffering and an ever-accelerated public burden, than the pound of cure. A healthy, self-supporting citizenry in a nation not overburdened by taxation—that's good business: good business for the citizen, for industry, and the nation.

Today, hosts of untreated venereal-disease sufferers need no longer spend their lives as public charges in hospitals and mental institutions. But they do, and they will, so long as 600,000 to over 1,000,000 hidden cases remain hidden, untreated, uncured, a menace to countless future victims. Success in the control of venereal disease depends on finding these hidden cases and rendering them noninfectious, on maintaining budgets for public-health services, and

By PHILIP R. MATHER
President
American Social Hygiene Association

on insuring the cooperation of private physicians.

The disastrous and costly effects of syphilis can be prevented only by finding cases and instituting treatment in the early stages when costs in suffering to the patient and in dollars to the taxpayer are lowest. Early case-finding is saving New York State $2,500,000 a year in the care of paretics alone, excluding the care of cardiac cases due to syphilis, the gonorrheal arthritics, and the syphilitic blind.

What are the costs of VD?

Who can begin to arrive at a figure? Who can estimate the cost of venereal disease in terms of heart trouble, crippling, mental disease, blindness, decreased life span, lost wages, compensation, relief, medical care, labor turnover, industrial accidents, lowered production, decreased purchasing power and attendant social damage—the consequences of untreated, or inadequately treated, syphilis and gonorrhea.

What are the costs in dollars to the taxpayer?

If we were to start out on the well-nigh insuperable task of finding out the exact extent of the VD burden, we should include charges for the following items:

Institutions, such as clinics, hospitals and laboratories.

Personnel, such as physicians, nurses, laboratory technicians, interviewers, investigators, educators, clerks, statisticians, institutional maintenance staffs from superintendents and medical directors to engineers and night watchmen.

Services for the handicapped and other specialized help for syphilitics unable to maintain themselves.

Relief for unemployable syphilitics and their families.

Legal and police measures against prostitution as a major channel for the spread of venereal disease.[7]

Take, for example, the cost of the highly essential services of our public-health departments. In 1949, public appropriations for VD control amounted to $40,370,000, divided as follows:

$17,370,000 spent by the federal government
7,100,000 by the states
15,900,000 at the local level.

Or take one group in our population which deserves special attention in any discussion of VD and its cost in people and dollars—our war veterans.

Approximately 200,000 cases of syphilis were contracted by men in the Armed Forces from 1940 to 1947. If nothing is done to prevent the onset of tertiary syphilis, a large number will become disabled in the next 25 years. Without preventive action, it is estimated that the cost of their medical care alone, in the next 25 years, will be approximately $328,000,000. If estimates for disability and loss of private income and other social costs are counted, the total is over a billion dollars.

At the end of June 1949, there were over 4,900 cases of syphilis of the central nervous system in veterans' hospitals alone. At a cost of $40,000 each from admission to death or discharge, we shall pay a total of just under $200,000,000 for their care.

There is no doubt that good work on the part of interested citizens to find syphilis cases in the early, curable stages will mean that 20 years hence, we shall have fewer paretics to hospitalize.

Who can estimate the cost to the taxpayers of commercialized prostitution, which contributes so largely to the spread of venereal disease? Who can estimate the cost to our economy of lowered real-estate values in the area of a brothel? Of the delinquency, crime, and human perversions which results from that brothel?

Who can measure the unholy burden to the taxpayers inflicted by unscrupulous real-estate owners, dishonest doctors, and corrupt politicians and law-enforcement officers who reach a satisfactory understanding with racketeers and vice merchants?

If a thoughtless and neglectful public refuses to see how vast a part this traffic plays in the spread of venereal disease, that same public must make up its mind to continue to pour out millions for the care of those destroyed by venereal disease.

It seems wise, therefore, for taxpayers to ask some pointed questions, and for City Hall to provide precise answers. Usually, no one knows better than a mayor and his official family the importance of informed citizens to the smooth administration of public business.

To help you strengthen social hygiene in your town, the public should know the answers to these questions:

1. How many cases of syphilis and gonorrhea were reported by the doctors in your community last year?
2. How much money does your community spend for VD control?
3. What per cent of the money allocated for communicable disease control in your city goes into VD control?
4. How many local residents are blind because of VD?
5. How many babies are born each year in your community who are victims of congenital syphilis?
6. How many local residents are insane because of VD?
7. How much does it cost the taxpayers to care for them in institutions?
8. How many local residents died of syphilis last year?
9. How much is it costing your community to support the widows and children of these men today?
10. How many of the venereally infected are repeaters, becoming infected again and again?

These are only a few of the questions the public should put to their municipal officials, the individuals who know how costly VD is. I will hazard a guess that when the people get the answers, they will decide it is good business to help you find those in your community who have venereal infections and to treat them in the early stages when they are curable.

One more question—

What is the possible cost in terms of national security of the VD menace?

My answer is frank. If the time should come when we need every American man, and need them desperately, let us find them able-bodied. We cannot afford to dissipate uselessly, through ignorance of VD, our most precious resource—manpower. An important point to remember is that men in uniform do not become infected while on duty, but in the cities they frequent when off duty.

Some years ago, Dr. Parran, then Surgeon General of the United States Public Health Service, placed the responsibility for economy in VD control on all of us when he said: "The efficiency of any unit job to control VD will not rise above the level of its citizen leadership, the capacity for teamwork among all branches of its local government, and the definite interest in the quality of the work expressed by the majority of taxpayers who directed that this job be done for their protection. They have the right to get their money's worth by seeing that it is well done."

Now. As a municipal official, what can you do?

1. You can supply the answers to the questions I have suggested.
2. You can encourage more active case-finding, so that VD infections will be discovered and treated early.
3. You can be sure that your health department not only provides treatment but has enough competent investigators to follow up adequately *all* VD contacts and sources of information and persuade them to receive prompt, proper treatment.
4. You can spend a dollar today to save $10 tomorrow by allocating enough money to insure the *best* VD case-finding and treatment.
5. You can enforce the laws against prostitution and other vice conditions that spread VD.
6. You can pass local ordinances or vigilantly enforce existing ordinances prohibiting the sale of liquor to minors and to those under the influence of alcohol.

And you—as a public-spirited citizen and taxpayer—what can you do?

You can see that *all* the forces of your community which are fighting VD receive adequate moral and financial support. This means your local social hygiene group as well as your health department, because the one supplements the other.

You can make sure that prostitution is repressed in your community by backing your law-enforcement officers to the hilt. All the penicillin and clinics in the world won't solve the VD problem if prostitution is flagrant. *You can't substitute medicine for morals.*

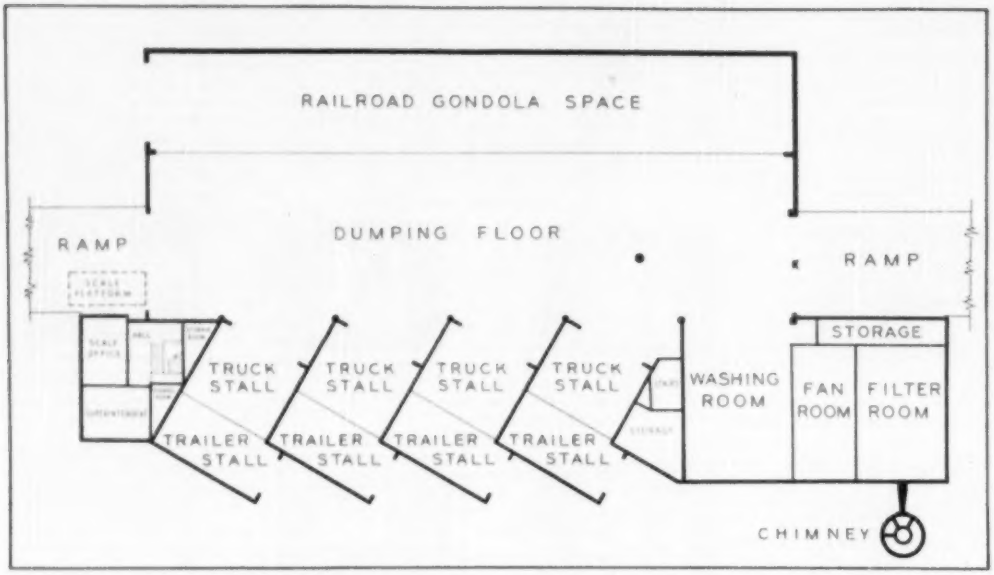
You can back the social and health agencies which are helping to make your community a good place in which to live, work, make your home, rear your family. Go to the Mayor, the Council of Social Agencies, or the health committee of your Chamber of Commerce. Discuss the local social hygiene situation. Make a list of the ways cooperative action can improve the situation.

And then offer your help in working for:

Strong, healthy family life
Education for successful marriage and parenthood
Social services which help families to hold together
Laws which protect families and young people
A wholesome community, free of prostitution and VD

There is no single contribution you can make which will mean more in terms of humanity now and in relief from intolerable economic burdens later than to see that the VD control and prevention job is done, and done adequately.

Transfer Station Expedites Refuse Handling



A line drawing of the main floor of the District of Columbia transfer station.

Washington, D. C., builds facilities to receive refuse from residential collection trucks and transfer it to railroad gondolas or 30-yard truck trailers for delivery to disposal points

By W. A. XANTEN
Superintendent
Division of Sanitation
Washington, D. C.

THE AVAILABILITY of low ground within reasonable haul for disposal of refuse is a problem rapidly approaching serious proportions in most of the large cities in this country. This is indicated by the marked trend, in recent years, toward incineration in the larger communities, and the gradual recognition of the need for improved operating practices in the maintenance of landfills.

The District of Columbia has been no exception. Its total production of various types of refuse during the fiscal year 1950 (July 1, 1949, to June 30, 1950) was as follows:

	Cu. Yds.
Street and alley sweepings	264,975
Ashes and miscellaneous noncombustibles	517,484
Garbage	190,000
Combustible refuse	3,128,612
Total	4,101,071

This does not include dead animals, excavated or dredged material or large trees and tree stumps. While the municipality exercises control over the disposal of all solid wastes produced, a large percentage of the production is from industrial, commercial, and U. S. Government sources, and is not collected by the municipal forces.

The reduction of this large volume of wastes by every possible means without resorting to placing it on our small, remaining areas of low ground is a policy which is being rigidly followed. This requires the incineration of as much of the combustible material as possible, the practice of permitting garbage to be fed to pigs, the use of leaves for composting, and the use of ashes and cinders for various purposes by private and public agencies. Even with all of these measures, disposal by dumping is the only possible method for approximately 25% of the total yearly production, as follows:

	Cu. Yds.
Street and alley sweepings	185,000
Ashes and miscellaneous noncombustibles	490,000
Residue (from incineration of combustibles)	312,000
Total	987,000

The objective in providing a centrally located refuse transfer station for the District of Columbia was primarily to reduce truck haul for collection units operating in the heart of the city and to provide a modern building for the transfer of garbage and other refuse from municipal collection trucks to 30-yard tractor-trailers, gondola railroad cars, and the units of pig-feeders (to whom most of the municipal garbage is turned over). In passing the enabling legislation, Congress was aware that such a building would be located within a few thousand feet of the U. S. Capitol, and House and Senate Office Building, and, therefore, wrote a proviso into

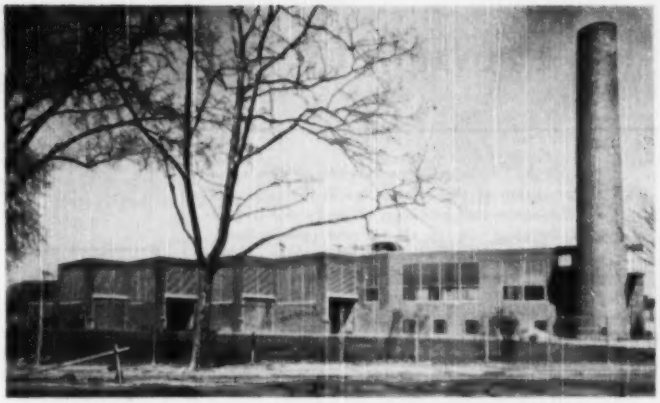
the law that the structure be equipped for odor and dust control.

While such a plant was considered essential for the transfer of garbage, one of its most important functions was also to provide a place for transferring other types of refuse such as incinerator residue, street sweepings, ashes, and other non-combustibles for bulk shipment to existing landfills which are rapidly becoming located farther and farther away from the center of the city. The table in the next column shows monthly the average daily quantities of refuse to be handled at this transfer station. The quantities shown do not stand for total production, and with the exception of municipally collected garbage, which is all hauled to this plant, the loads shown as incoming are from limited areas of the city only.

Since the erection of this station, the municipality has discontinued the operation of its garbage reduction plant which was located on the banks of the Potomac River at Cherry Hill, Virginia, about 35 miles south of Washington; it instituted in lieu thereof at the same location a sanitary fill to handle non-combustible refuse, garbage and large dead animals. Rail shipments of straight garbage have been practically discontinued and a somewhat larger percentage of municipally collected garbage is now turned over to pig-feeders. Also, a 10-ton per hour Jeffrey garbage-grinding unit was installed in the transfer station to handle miscellaneous garbage-disposal problems.

The transfer station is 270 feet long, with both entrance and exit ramps on opposite sides of the building, and 140 feet wide, planned to accommodate gondola railroad cars on one side and trailers on the other. The station was designed to receive four gondola cars along a dumping rail on one side of the building with provision for four additional cars on a parallel track, all within the building. Four separate "two-truck" capacity stalls were provided on a saw-tooth arrangement on the south side of the building for depositing refuse into trailers. By the use of interior and exterior electrically operated overhead doors, each one of these

Continued on page 169



The 30-yard trailer trucks enter on this side of the building.

	Incoming Truckloads					*Outgoing*		
Month	*Garbage*	*Street Refuse*	*Incinerator Ashes*	*Incinerator Residue*	*Total*	*Garbage by Gondola Cars*	*Garbage by Farmers' Trucks*	*Other Refuse by Trailers*
January	101	70	56	13	240	2	89	28
February	84	70	56	13	223	2	73	28
March	84	70	55	13	222	2	73	28
April	84	72	45	13	214	2	73	28
May	83	76	29	13	201	2	72	28
June	106	67	21	13	207	3	77	20
July	128	87	15	20	250	3	80	24
August	123	80	13	16	232	3	81	22
September	132	81	21	17	251	3	97	24
October	90	119	30	16	255	2	73	33
November	101	121	42	15	279	2	87	36
December	85	89	57	15	246	2	70	32

Residential collection trucks go up this ramp and out a similar ramp on the other side. Railroad gondolas enter left.

Preview of CIVIL DEFENSE

If World War III Is Not Avoided

"IF AN ATTACK in force is made on this country, some of the attackers will get through." This statement has been made by the Department of Defense. In an all-out war your community is expendable. The military forces of the country have as their primary obligation the defense of military and war production installations, for the facilities to conduct a war must be protected and maintained, if we are to survive. This does not mean that the military will not exert every effort to protect you and your community, but first things come first in an all-out war against a ruthless enemy. However, an adequate Civil Defense, supplementing a powerful military defense, will help to make an attack unprofitable.

W. L. C.

IT WAS almost two years ago that Col. John B. Atkinson, City Manager of Cambridge, asked Dr. Cronin to reactivate the key personnel of the city's World War II organization and study the modern concept of Civil Defense. The Cambridge experience should be of value to other municipalities, and the Cambridge plan for "Setting Up a Local Civil Defense Organization" is available to executives of municipalities by addressing the author at City Hall Annex, Cambridge, Mass.

By DR. WALTER L. CRONIN
Director of Civil Defense
Cambridge, Mass.

IN SETTING up a local civil defense organization, there are certain basic fundamentals which should be adhered to. The first is that a non-political director of civil defense be appointed. A Municipal Civil Defense Ordinance should be enacted and municipal appropriations should be made.

The success and efficiency of the organization will depend upon the abilities and leadership of the director of civil defense. Cities of 30,000 or over should have a full-time paid director whose salary should be equal to that received by the highest-paid department head. In cities of less than 30,000, a part-time paid director or volunteer could be appointed.

The nucleus of the organization should be recruited from municipal departments. Insofar as practicable, municipal department heads should be appointed as deputy directors in charge of the civil defense divisions in which their departments will function. They will be responsible for recruiting, organizing and administering their divisions, consistent with the over-all plan and program. Communications, Technical, and Warden and Plant Protection Divisions could be headed by volunteer deputy directors.

Mistakes to Avoid

Civil defense should not be set up under the police department as many communities plan to do. The police department will be overburdened with its own problems in the event of a disaster. Civil defense is not a police problem; it is a supreme effort by all municipal departments, supplemented by private sources and volunteers.

Many weaknesses were demonstrated in World War II and will be multiplied 100-fold in the event of any future hostilities. This does not mean that if some police officer has the qualifications and ability to perform the duties of director of civil defense, that he should not be considered; but if appointed, he should be granted leave with pay, divorced from his connection with the police department and made responsible only to the chief executive.

Exercise care in asking local leaders to advise in setting up a civil defense organization. Many of these well-meaning and public-spirited citizens know nothing of civil defense and their advice not only may be worthless, but may cause wrangling and impede efficiency.

Another mistake is to assign radiological teams to the Medical Division. Here we would be confusing cause and effect. To be consistent, the fire department should be placed under the Medical Division, because fire causes physical damage to humans just as do radiological waves. It would, therefore, not be good planning.

Some charts assign bomb reconnaissance to the police departments, probably because some metropolitan police departments have so-called "bomb squads." The two are entirely dissimilar. A bomb reconnaisance officer must be trained by the army. His special task is to determine the presence of unexploded *military* bombs, their size and type, the potential hazard and the extent of the area to be evacuated. True, police officers could be taken from their regular duties and trained in this important task, but why remove from the police department a professionally-trained man?

There are those who believe that only a physician, presumably your health officer, should head the Medical Aid and Health Services Division. There are those who believe a civilian should be the administrative head, releasing the physician for professional duties. If a civilian is appointed, he should have the confidence and approval of the medical profession. Medical personnel sometimes make poor administrators, and most of them prefer to use their professional talent in time of disaster rather than be seated at a desk.

Training

Training should be the responsibility of your local Department of Education, headed by the Superintendent of Schools, who should designate members of the teaching staff to receive specialized training. These persons in turn should act as the faculty of the training unit of the civil defense organization. Volunteers outside the school system having special qualifications may be added to the faculty. State and federal authorities will have the responsibility for the specialized training and instruction of the faculty staffs.

As soon as possible a survey should be made of all facilities, equipment, and supplies, both public and private, which could be of material assistance in the event of a disaster.

Maps showing all pipe lines, gates and shut-offs, for water, sewer and gas and underground electrical conduits should be prepared. These and traffic

control maps ought to be in the possession of the civil defense director and police forces of all contiguous communities, as well as in the hands of the state director of civil defense, so that they are available if the usual storage place of the maps is destroyed.

Traffic

Police departments should chart on city maps their plan for traffic control, having in mind that an atomic bomb would cause destruction in an area four miles in diameter. Traffic control points should do three things:

1. Bar unauthorized traffic from entering the area
2. Maintain open highways to permit emergency vehicles and supplies to enter the area
3. Maintain open highways for evacuation of people

Fire services share with medical aid the major problems in future hostilities. Your immediate problem is to aid your fire chief in bringing up to standard his equipment and personnel. In most cases in World War II, auxiliary firemen, for various reasons were not successful. However, the magnitude of the fire problem demands that some preliminary planning, on a large scale, be immediately instituted. It can be summarized by the following points:

1. Purchase of all necessary fire equipment to bring the local fire department up to the normal standard.
2. Increasing personnel to the acceptable maximum.
3. Intensive training and indoctrination of industrial and other private fire protection personnel.

Red Cross

The Red Cross plays an important part in establishing blood banks, in training first-aiders, home nurses, etc., and in evacuation schemes, housing, feeding, and civilian war aid. If you have a local chapter, the members of the Red Cross may prove to be invaluable to you as participants in these divisions.

It is important to realize that the problems involved in civil defense of the future are totally unlike those of World War II. Civil defense in World War II was organized to combat token or pin-point bombing with small high-explosive or incendiary bombs. The contemplated damage was expected to affect only small areas. Civil defense of the future may contend with atomic or possibly hydrogen bombs, guided or rocket missiles, sabotage, bacteriological warfare, heavy high-explosive bombing, and modern war gases.

Huge pools of manpower will be needed, guided and directed by specialists in each field. Supplementing this will be mobile units dispatched in many instances from hundreds of miles away.

In the event of attack in a future war, local officials must be prepared for the following:

1. A large devastated area.
2. Hundreds of simultaneous fires.
3. Lowered water pressure, or no water.

(Continued on next page)

Civil Defense Questions Answered by Dr. Cronin

Question: ***To what extent should we organize?***

Answer: Until a change occurs in the international situation or until Federal Directors order otherwise, organization and training should not include lower echelons.

In the meantime, your immediate and continuing concern is to train your staff, key personnel, technical experts, municipal department heads and staffs, police, fire and their auxiliaries, medical personnel and plant protection officials—all of whom make up your skeleton organization.

Training of wardens and other volunteers who make up your vast pools of manpower should not be undertaken until conditions warrant it.

Your skeleton organization can be depended upon for continuing interest during long periods of a cold war, while lack of imminent peril will cause depletion in the ranks of large groups of volunteers.

Question: ***What budgetary commitments should be made at this time?***

Answer: Budgetary commitments should not at this time contemplate large expenditures from your annual budget. Sufficient appropriations should be made to provide operating expenses for your Civil Defense Agency and to bring all municipal equipment up to the normal peacetime maximum.

Extraordinary expenses should be restricted to installations or equipment which cannot be postponed with safety.

Question: ***My community is not a primary target. Why should we organize a civil defense unit?***

Answer: Your community may not be a primary target but it may be hit by bombs from planes jettisoned in combat, or by a missile which misses a primary target. In spite of your isolation you can be the target for sabotage or bacteriological warfare affecting man, beast or crops.

Principally, you may be called on for assistance to a community hundreds of miles away which has been attacked.

Question: ***What assistance can we expect from the Federal Government?***

Answer: Present plans call for the Federal Government, through the National Security Resources Board, to furnish technical advice, educational material and organizational planning. It already has provided training centers for state-appointed radiological and medical experts.

It may in the future establish depots of medical supplies and blood derivatives at strategic points throughout the nation.

Until, and if, Congressional and presidential action directs otherwise, this will be the extent of the Federal contribution. Financial aid or distribution of equipment or supplies is not at present contemplated. The issue has been placed squarely on the shoulders of the local community.

Question: ***How long will it take to complete the organization and training?***

Answer: Under present conditions, it should take approximately one year to organize and train an efficient skeleton organization. Imminent hostilities would, of course, considerably accelerate the timetable.

Question: ***How should we organize for mutual assistance?***

Answer: Mutual assistance will be by contiguous communities, and by intrastate and interstate regions. The first and immediate assistance will be from contiguous communities. The second, from communities within the previously determined civilian defense region of which the community is a part. This may, in some cases, like New York City, include communities in one or more contiguous states. The third, from adjacent civilian defense regions, either from within the state or contiguous states. The fourth, from states hundreds of miles away.

In extreme situations, if martial rule is invoked by Federal military forces, or if an area is declared a combat area, military aid will be given if available.

4. Roads blocked by debris.
5. Contamination from broken sewer pipes.
6. Broken gas mains.
7. Disruption of electrical power.
8. Fire fighting equipment destroyed.
9. Communication facilities destroyed.
10. Thousands of people dead.
11. Thousands of people buried alive in collapsed buildings.
12. Thousands of people needing *immediate* hospital attention.
13. Thousands of people seriously burned.
14. Thousands needing minor first-aid treatment.
15. Principal hospitals destroyed and all personnel killed.
16. 20% to 50% of your physicians killed.
17. Lack of whole blood and blood plasma absolutely necessary to save life.
18. Drugs, dressings and equipment not immediately available.
19. Water supply contaminated.
20. Food contaminated and unsuitable for use.
21. Children separated from parents.
22. Children made orphans by the disaster.
23. Extreme panic by population.
24. Extensive looting.
25. Roads jammed with vehicles and evacuees.
26. Problem of housing, feeding, and clothing hundreds of thousands of homeless.
27. Problem of maintaining open highways for arrival of mobile units and necessary supplies and equipment.
28. Post-disaster rehabilitation of essential services, cleaning debris, restoration of normal functions.
29. Post-disaster long-time care of injured.
30. Post-disaster long-term housing and feeding.
31. Relocation of homeless to new areas.

Obviously no national or local precaution can cope with all of these contingencies; but a well-trained civil defense organization can help to minimize these evils, if disaster strikes.

Action on Civil Defense

MUNICIPALITIES throughout the country have, in recent weeks, intensified their efforts to strengthen their disaster relief and civil-defense programs. The recognition has grown that such activities are destined to become continuing local responsibilities, requiring periodic review and strengthening.

The Civil Defense Board of Seattle participated in July in a "pilot" program sponsored by the National Security Resources Board, which included a hypothetical problem involving the atom bomb. The local civil defense program was thoroughly analyzed and criticized. According to Mayor William F. Devin, Seattle gained at least a year in its Civil Defense planning as a result of the exercise. In a letter to THE AMERICAN CITY, Mayor Devin adds:

"The only general comment I can make at this time is to emphasize that our Civil Defense Board is based on our municipal government. Wherever we have responsible officials operating in fields related to the major areas of Civil Defense, those officials are in charge of that phase of the program. The only exception in our case is in the broad area involving welfare—shelter, food and clothing—which in Seattle is not a municipal function. In this case we have turned to the local chapter of the American Red Cross for leadership, and they have worked closely with us."

In the Philadelphia area notable steps have been taken to insure a mutual-aid program in case of disaster among the nine-county metropolitan district of five Pennsylvania and four New Jersey counties. Started under the direction of the Greater Philadelphia-South New Jersey Council, each county has set up committees of men to act as coordinators of communications, medical and other resources, with the council acting as the clearing house.

The council is assembling a complete inventory of available emergency facilities, including doctors, nurses, medical supplies, fire fighting, demolition and debric clearance equipment and personnel. An industrial plant security program has been established.

Useful Publications Available

● *The Effects of Atomic Weapons*, a 456-page book released in August, which was prepared for and in cooperation with the U. S. Department of Defense and the Atomic Energy Commission, under the direction of the Los Alamos Scientific Laboratory. The book is for sale at $1.25 per copy by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. It was designed especially to be of aid to technical personnel engaged in civil-defense planning activities.

● *"Hiroshima, U. S. A."*, a 16-page article published in *Colliers* magazine, August 5. This includes a detailed report on British Civil Defense procedures and training which should be of special value and applicability in the United States.

● "Civil Defense in Your Community," pamphlet published by Chamber of Commerce of the United States, 1615 H Street Northwest, Washington 6, D. C. Single copies on request; additional copies 20 cents each; 100 or more copies, 15 cents each.

● *Atomic Warfare*, a 50-page manual in loose-leaf form, directly applicable to civic-defense planning. Sixth of a practical series for British civil-defense indoctrination. Series already includes manuals on chemical warfare, fire fighting, rescue work, first aid, and protection against high-explosion Services, 30 Rockefeller Plaza. mation Services, 30 Rockemeller Plaza, New York, N. Y. 50 cents.

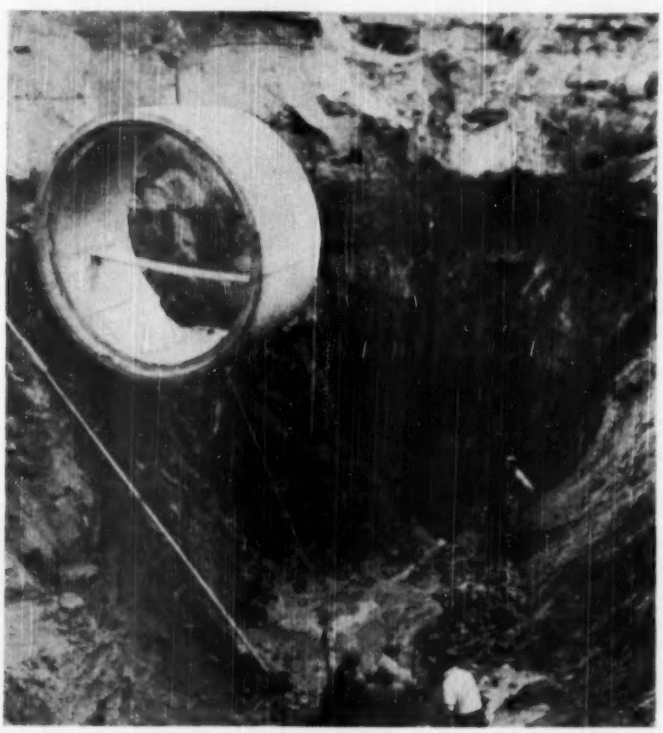
Organization chart of the Civil Defense Unit of the City of Cambridge, Mass.

Midland's Big Storm Sewer Project

A 6.7 mile line laid in open cut corrects a bad drainage problem in this city, opens new areas for growth

By JOHN M. BIERY, *City Manager*
Midland, Mich.

Winter was an aid to the construction of nearly all the upper branches of the project, making it possible to excavate in a ditch normally carrying water.



A 10-foot length of storm-sewer pipe is lowered into a 30-foot trench.

THE greatest storm-sewer project in the history of Midland is rapidly nearing completion. This $1,600,000 project will end an old problem in this city, that of open, polluted ditches, inadequate drainage, and the impossibility of extending drainage into newly developed residential areas. The project will make available hundreds of desirable building lots.

The project was divided into two separate contracts. The first, amounting to $415,350, included 9,911 lineal feet of pipe ranging in size from 18 to 78 inches. This was completed a little more than a year ago. The second section was divided into three contracts for convenience because of its size. In this work, a decision had to be reached whether to install the drain by tunnel or by open cut, and an appraisal of the bidding showed the economy of the latter method. The savings amounted to a half million dollars.

The three contracts, totaling $1,284,682, were awarded to the L. W. Wells Company of Saginaw, on September 29, 1948. During the winter, under freezing conditions, the contractor was able to install nearly all the upper branches of the project. This action proved a wise one on the part of the contractor, since much of the pipe was placed in existing open ditches and the work would have been most difficult were they carrying their normal warm-weather runoff.

5,074 Feet of Pipe Required

The rest of the work required 5,074 feet of 10-foot-diameter pipe. Much of it was laid to a 30-foot depth contained within a 16-foot-wide trench. This portion of the pipe rests on a foundation of vertical H-columns, driven to a point below grade, which support horizontal timbers. Much of the trench was fortified with vertical steel sheet piling.

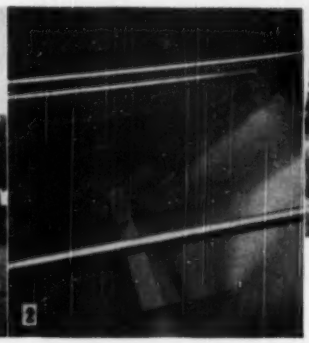
The pipe is being manufactured on the old airport site by the Lock Joint Pipe Company, East Orange, N. J. This pipe is the largest pre-cast sewer pipe ever built and required special forms for its manufacture. The pipe is cast in 6-foot lengths.

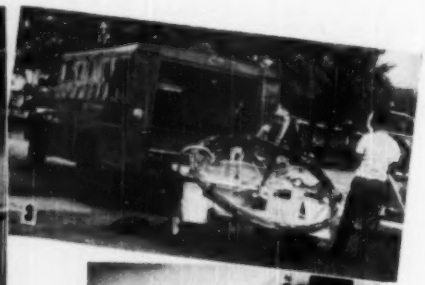
To insure solid backfill, the clay excavated for the ditch sections was hauled away to waste and replaced with a sandy soil that compacted readily. This also made the work much more convenient to the property owners adjacent to the work.

The total length of the storm sewer is 6.7 miles. The design and supervision of construction for this improvement was the responsibility of Drury, McNamee and Porter, consulting engineers of Ann Arbor, Mich.

Rochester, N. Y., Shows Equipment To Upstate New York Officials

About 60 Mayors, Councilmen, and other public-works officials gathered in Rochester, June 5 and 6, to discuss common problems. Rochester's equipment demonstration featured meeting





1. City Manager Louis B. Cartwright, left, and Public Works Commissioner Edward F. Nier inspect activities.

2. A detail in good maintenance. This is the interior of a Baughman salt spreader operated by the City of Rochester. The roof-like channel over the conveyor in the bottom of the truck prevents any excessive loads resting on the conveyor and causing damage.

3. Rochester's sewer maintenance team. This truck and trailer were developed by Earl Van Gelder, Supervisor of Sewer Maintenance. The truck contains all the necessary equipment including 500 feet of fire hose for flushing. A cab in the forward portion of the truck body, separate from the driver's compartment, carries a four-man crew. The truck tows Flexible Sewer Rod cleaning equipment. The truck has one-way radio contact. The message can be received but acknowledgment must be telephoned in. The city has seven such trucks, of painted aluminum for visibility, since they often must operate in the middle of the street.

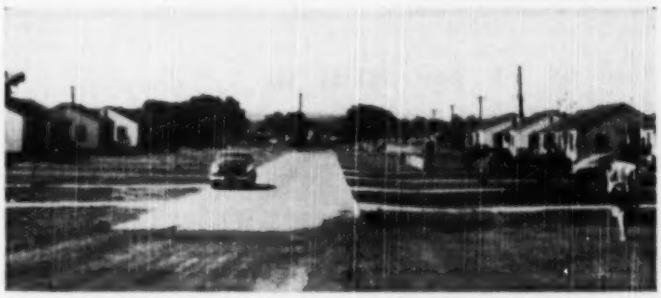
4. Fred Crane, left, Commissioner of Public Works, Buffalo, N. Y., in a close huddle with Louis Fest, Buffalo's Superintendent of Streets, discussing the leaf-loader built in the Rochester public-works shops. The blower uses a Chrysler motor that powered a civil defense siren during the war. In addition to air suction, it has a chain-driven broom that starts the leaves into the blower inlet. The design is such that it minimizes bends in the intake and exhaust passages of the blower.

5. Prettiest sales representative at the meeting was Mary Lowe, daughter of John Lowe, representing Dempster Dumpster, Inc., Knoxville, Tenn.

6. A tight-packed load of 18 cubic yards of refuse in an open truck exactly as received from the Rochester market areas goes into a 12-yard Gar Wood Loader as a demonstration before the assembled public-works officials. The closed truck did not quite receive all the open-truck load.

Economy Paving

For New Subdivisions



Here is the way Bartlesville's low-cost curb-free street looks.

By DON V. PURINGTON *
Hudgins-Thompson-Hall and Associates
Consulting Engineers
Oklahoma City, Okla.

FEW people realize that the economics of municipal engineering require paved streets to serve also as paved troughs to carry off excess storm water that has no other place to go. It has been recognized for many years, by honest engineers, that it is not economically feasible to design and build underground storm sewers large enough to carry away all of the water from the heaviest rain that may fall on a city. It has long been the practice of municipal engineers to build the largest storm sewer possible with the money available, and to hope that the maximum rain will not occur during their term of office, or if it does, that the streets will carry and hold the excess without too much inconvenience to the public.

In the photograph which illustrates this article, the builder and developer of this area in Bartlesville, Okla., was persuaded to provide a highway-type of street. This recommendation was based on several considerations. The houses were being built for low-income owners. The ditches in the old street carried an unusual amount of storm water. Computations showed that two 36-inch pipes would be required to carry a normal 3-inch rainfall. The cost of this storm-sewer installation would add several hundred dollars to the cost of the houses.

Enlarged Waterway

The highway section proposed and used has a 34-foot crown with 20-foot pavement, and two 20-foot-wide ditches. The ditches are 1 foot deep and have 10-to-1 slopes. The actual waterway thus provided by these two ditches is greater than the waterway that could have been provided by the two 36-inch pipes plus the waterway capacity of a 26-foot pavement with 6-inch curbs.

The driveways are all concrete and follow the contour of the ditches and crown to join the edge of the existing pavement. This allows the water to flow down the ditches without restriction, provides concrete ditch checks to prevent erosion, and will, at the maximum, require fording of one foot of water for a short distance. The wide ditch allows the water to spread out and reduces the velocity, which does not happen in the deep, narrow ditches that are so common on many of the unpaved streets in all our cities.

The 10-to-1 slopes will grow sod readily, and can be crossed by any wheeled vehicle without hazard or discomfort. They are more easily maintained and mowed than the usual lawn terrace and parking area where curbs are constructed. If necessary, such slopes can be bladed and reshaped by the regular street maintainer without damage to the roadway or driveways, and they will re-sod themselves rapidly.

In locations where the soil is not suitable to provide stable shoulders, the application of a light asphalt and gravel surface may be used. Our cities and citizens spend entirely too much providing concrete paved areas in front of residential property on which the owner's guests can park their cars.

Of course, this type of construction requires a wider street than most subdividers are in the habit of providing. This is one of the big obstacles to the general adoption of this plan. There must be at least 74 feet between the street lines, exclusive of the sidewalk area. With this width, there will be ample room, when this area is older and has been swallowed by the city's future growth, to construct as much as two 30-foot pavements separated by a median strip of 4 feet, and still have space left for parking or sidewalks. Using this highway section, there will be no curb to be removed and rebuilt and much less expense for grading, when the boulevard section is required.

There is economy of construction, since less pavement width is required and no curbs are built. No catch-basins, curb inlets, and storm sewers are required. The same valley gutter can be used on side streets that is used in the driveways, although an occasional flat-arch culvert may be required. There is additional economy with no underground storm sewers to maintain, no catch-basins to clean, and no gutters to catch and hold dirt and trash which must be swept up and hauled away. Economies of this type spread over the miles of new streets that are being added to our cities, would mean much in financing the other new services that are required by city growth.

* Mr. Purington is a former city manager of Bartlesville, Okla.

Montclair Acts First Under New Jersey Optional Charter Plan

To the Editor of THE AMERICAN CITY:

I greatly appreciate the excellent coverage you gave the new optional charter plan for New Jersey as contained in your issue of July 1950.

You will be interested to know that my own home city in Montclair has been the first to act under the new laws. Our Board of Commissioners took the initiative and placed upon the November ballot the question of electing a charter commission. The people of Montclair responded immediately and have organized a citizen group for the purpose of urging an affirmative vote and backing an outstanding ticket of five persons for charter commissioners.

It is, of course, very gratifying to me that my home community has acted so promptly in this connection, and I am awaiting the outcome with great interest.

B. H. FAULKNER
Montclair, N. J.

Municipal **P**ublic **R**elations

The City Tells Its Story

By HENRY DAVIS NADIG, *Director of Public Relations, New York Regional Plan Association*
Executive Director, Association of Municipal Public Relations Officers

Use of TV for MPR in Los Angeles and Cincinnati

EARLIER in this column brief reference has been made to the potentialities of television as a medium of MPR. Some specific details now available on actual experience in the use of TV by municipalities should be of value to cities considering it, and to other cities for possible future reference.

While New York, New Orleans, and possibly other cities, are actively employing TV to inform the public of municipal government affairs, the most complete notes I have to date are from Los Angeles and Cincinnati. In a later column, I hope to review TV in the other two cities and in any additional municipalities on which TV reports can be obtained.

David Apter, Executive Assistant to the Mayor of Los Angeles and President of the Association of Municipal Public Relations Officers, reports for the West Coast metropolis.

Mr. Apter writes that for several years Los Angeles had a 15-minute "newsreel" on KTLA, the Paramount station. One of the men in the Mayor's office covered various city events with a 16 mm camera. These pictures were printed and then edited down to fit within the alloted time, and a script was prepared to be read by an announcer at the station as the film was shown.

This was strictly a "no budget" enterprise, Mr. Apter says. The cost of the film raw stock was paid for by the station and the Mayor's staff handling the job did not attempt to prepare a sound track because of the expense. The program is not being produced currently but Mr. Apter writes:

"However, I feel the program was effective as it gave the viewing public a visual understanding of many of the unpublicized city services."

There were usually three subjects on each show. As an example, pictures would show a person dropping a lighted match in the hill country during the fire season. The resultant blaze would then flare into view and the TV audience would see fire trucks arriving to put it out.

In this fire prevention episode, the commentary would attempt to give the viewer an appreciation of the dangers of forest fires, tell him about precautions to take and how to contact the fire service.

Another clip might cover the graduation of a class of policemen from the police academy, with various shots showing the different types of training that a police officer goes through. Still another series of views would show sales tax collectors going from door to door in the business district, checking on sales taxes. The continuity would cite the deadline for submitting sales and business tax fees.

Mayor Fletcher Bowron has a regular television show every Monday night.

"This is a continuation of the policy established close to 12 years ago when he took office," Mr. Apter writes. "At that time he began a weekly radio report to the people and has continued it ever since."

On this weekly TV show, Mayor Bowron often appears alone but sometimes takes one of the other city officials along with him.

Recently he had with him on his TV show the leaders of the city's major disaster organization. They discussed the plans for civil defense in Los Angeles.

Here in itself is a very sharp example of how TV can be put to very timely and effective use.

Mr. Apter has some specific and significant comment on the effect of TV at the receiving end.

"Sells" *Year Book*

"We have found," he says, "that television elicits a tremendous response, more so than radio. For example, the first announcement that the city *Year Book* was off the press was made by the mayor on his television show. He picked up the book, showed it, opened some of the pages and discussed the material found there. By the next morning phones were ringing all over the office from persons who had seen the show, asking for a copy of the report."

Another TV show which serves as an MPR channel is a daily newsreel on happenings in the city which is shown twice every evening by KTTV, the radio

This "flier," given wide distribution in Pennsylvania, folds into a neat 2¾-inch by 4¼-inch size. It points out the importance of adequate community sewage disposal plants to public recreation facilities.

station of the Los Angeles *Times*.

The station is equipped to get its pictures, including sound, onto the screen within a few hours after events occur. Mr. Apter says the mayor's office works very closely with this program and that "hardly a day passes in which some City of Los Angeles activity is not presented on this show."

To take full advantage of this MPR opportunity, the mayor's office keeps KTTV informed in advance of upcoming events of the day, such as distinguished visitors who might be coming to the mayor's office, any special ceremonies and other municipal events of timely and newsworthy nature.

Tip for potential MPR-TV promoters: If you haven't yet done it, why not check with your local TV station's director? See if there is not a local show into which municipal government activities could be tied. Or, see whether you can't promote a regular local government show as a sustaining program.

In this connection, Mr. Apter notes that all of the city government departments in Los Angeles have become TV-conscious. They are constantly channeling story ideas to the TV shows that might be interested.

As an example, the show "Fun on the Beach" is always receptive to a demonstration by a lifeguard or a warning on water safety, says the Los Angeles MPR man.

Recently, it was arranged to have one of the doctors in the Health Department vaccinate the MC of a TV show on the air, to put across the importance of the city's inoculation program.

The MPR operation in the TV medium also includes close harmony with the NBC-TV newsreel, for which story ideas and photo setups are provided. During election time, assistance is given to all interested TV stations.

"There are seven television stations in Los Angeles and all are interested in public service programs," Mr. Apter says, adding: "We work as closely as possible with the various stations and programs in providing them with the material they require from municipal government."

TV in Cincinnati

In Cincinnati, TV went to Mayor Albert D. Cash. Alert Station WLW-T last November asked Mayor Cash if he would participate in a public service program to inform the citizens of the operations of their city, and to report on local events of civic interest.

According to Mrs. Mary M. Stevens, the Mayor's Secretary, he was offered the privilege of using the program to bring to the people any message he believed important.

Mayor and Mrs. Cash collaborate in planning the program. Mrs. Cash interviews prospective participants and writes the script, which is put in outline form only.

On the Cincinnati Mayor's show, which began December 11, 1949, with a program every week (except Christmas and New Year's) until July 1, more than 100 persons have appeared either as inquiring citizens or as city officials.

Scene of the TV show is the mayor's office, with the mayor and his secretary seated at the desk. The secretary leads off with a comment or question on some recent activity of the mayor, setting the stage for him to report on the event. The opening period is used also to announce anything of general interest.

Mayor Cash then asks what's on the calendar for today, getting the response that Mr. So-and-So has an appointment. In this way are introduced the average citizens who come to the mayor with a question or complaint.

Then Mayor Cash calls in the city official connected with the particular problem brought up, the official is introduced, and informal discussion follows.

Subjects taken up on this TV show in Cincinnati include the necessity for passage of municipal bonds, building of expressways, urban redevelopment, sewage disposal and stream purification, the value of the Millcreek Barrier Dam, housing, rat control, fire prevention, annexation, the water works, traffic, the Civil Service Commission, the Life-Saving Squad, the Youth Aid Bureau of the Police Department, the General Hospital, and the 1951 public improvement program.

From these two examples, it is obvious that (1) an alert chief executive can capitalize immensely on this new medium of MPR, and (2) TV stations are more than cooperative in presenting local government shows.

Your problem, then, is to take full stock of: (1) what you have in your municipal government that can be made available to TV, and then (2) offer it to your TV station through establishing a working rapport with the TV officials.

It is not to be expected that the average U. S. city can go in for a program like the $55,000-a-year schedule of New York City (which has a TV staff of eight), nor possibly quite like the Los Angeles MPR program in TV.

But, alert municipal officials can begin to reach out for ways and means to use, even in small degree, the many opportunities presented by television—particularly where TV stations exist in their own municipalities.

We have not yet begun to appreciate, let alone utilize, the real potentialities of the TV medium for MPR. But, again, through such pace-making efforts as those in Los Angeles, Cincinnati, New York and New Orleans we shall be able in a short time to recreate through TV, on the local level, a public showing real interest in local affairs.

TV may make a community more alert and alive to its local government, and may train a public to be more responsive to local service. With this may also come a greater citizen consciousness of the importance of local government to our democracy and a more staunch regard for those who serve in municipal office.

New Rochelle to Insure Its Employees' Jobs

NEW ROCHELLE is the first municipality in the State of New York to provide unemployment insurance for its own employees, Industrial Commissioner Edward Corsi, head of the State Labor Department, announced in July.

His approval of the step was transmitted through a letter from Paul H. Mayer, Director of the Tax and Wage Records Bureau of the State Labor Department's Division of Placement and Unemployment Insurance, to Ralph D. Klebes, New Rochelle's City Manager.

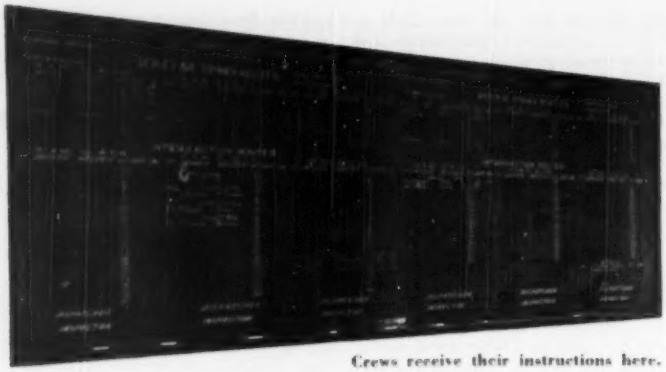
Subdivisions Have Option

Under the state unemployment insurance law, governmental subdivisions, such as counties, cities, towns, villages, public authorities, fire districts, and improvement districts have the option of providing this protection for their employees. State employees are already covered.

No contributions are required from the governmental unit electing such coverage, or from its employees, nor is there a charge for administrative expenses. However, the unit must reimburse the Unemployment Insurance Fund for the actual cash benefits paid out to its former employees.

Protection extends to all employees in the classified civil service of the city, except those who have not been employed continuously for at least one year, those receiving retirement benefits, part-time workers, and those paid on a per diem or other basis of less than half a month. Teachers are not covered because they are not in the classified civil service.

By EDWARD F. NIER
Commissioner of Public Works
Rochester, N. Y.



Crews receive their instructions here.

Cost of ice control is cut nearly in half—entire city can be "salted" in three hours

Rochester Likes Its Rock Salt Straight

ALTHOUGH Rochester, N. Y., was one of the first cities in the country to pioneer in the use of rock salt for snow and ice removal, we always mixed it with cinders until the fall of 1948. Our experience in the 1948-1949 season taught us that there are two easy ways of getting maximum value from rock salt. The first is to apply it straight; the second is to develop an organization that covers the city at the very beginning of a storm.

Using straight rock salt on 367 miles of streets last winter (1949-1950), we saved time and money on our snow-removal operations, kept streets safe and snow-free at all times (Rochester had no fatal accidents last season), and gave better all-around service to drivers and pedestrians alike. Mixing salt and cinders, we found by comparison, was an expensive and unnecessary operation.

To get the maximum benefit from this rock salt, we perfected an efficient and smoothly running application procedure that enables us to cover 367 miles of streets within three hours. At all times throughout the operation, we can tell at a glance exactly where our trucks are, what routes they have covered, and what routes remain to be covered, and we keep a permanent record of their work and of the condition of the streets.

In keeping Rochester snow- and ice-free throughout the winter, we learned the necessity for speed in carrying out our operations. Quick work at the beginning of a storm can save hours of work and hundreds of dollars at the end of it. That is one reason we switched to the use of straight rock salt. It works quickly and, in addition, it gets rid of snow and ice instead of merely covering it over, as cinders do, leaving a residue for us to clean up after the storm is over.

In Rochester, the rock salt is piled in the open without appreciable loss.

Weather Watching

To get the jump on storms, we maintain a continuous weather-watching service that gives us U. S. Weather Bureau reports of weather conditions from Cleveland east, and from near-by communities as well. Two inspectors on each side of the city keep these reports and relay them to the snow office if there is any danger of a storm. Throughout the winter season, central control is in continuous contact with the police radio system and the bus company's wire-telephone communication system. Thus, every police officer and bus driver is a potential inspector, who reports weather conditions through these two media. If it looks as if a 2- or 9-inch snow is coming, Edward C. Taylor, Superintendent of Streets, is notified, and he in turn notifies me. Meanwhile, the crews begin to load trucks with rock salt, and the entire snow-removal force swings into action. We have 10 automatic rock-salt spreaders (capacity 13 tons of salt) and two substitute spreaders for emergency use, and on bad days we use them all. We have found that rock salt works satisfactorily in removing snow and ice at temperatures down to zero.

As soon as it begins to snow or sleet, we send out these spreaders. For light snowfalls and for ice storms we have found that rock salt alone will remove the fall and keep the streets open and safe. For 2-inch snows and over, we plow and then put down another application of rock salt to remove the snow that the plows have left behind. The

use of rock salt before plowing not only reduces the volume of snow that must be plowed, but, in addition, it keeps the snow mealy so that it can be plowed easily and picked up and hauled away without freezing.

Route Assignments

To simplify our operations we have divided the city into two sections, with 24-spinner (or main) routes and 47 intersection routes, on which we cover all intersections. Snow-removal operations for the east side are handled from the Winton Road Station, and for the west side from the Dewey Avenue Station, which is also the central-control office. Operations are handled there by Frank Vicaretti, Supervisor in Charge of Ice Control. At each of these stations, Mr. Vicaretti stores between 1,000 and 2,000 tons of bulk rock salt in the open. We build the storage pile right on the ground, and we don't even bother to put a tarpaulin over it. We've never noticed any loss of rock salt from the weather, and we never have any lumps in the salt as a result of moisture. From our point of view, open storage is the simplest and most economical system that could be devised. Rock salt is trucked into each station from the International Salt Company mine at Retsof, N. Y. As the trucks are unloaded, we mix in the rust inhibitor. We use a crane to build up the storage pile and also to load the trucks during snow- and ice-removal operations.

Master Control Board

At the Dewey Avenue Station, we have a master control board that lists all our trucks, drivers, and routes, and also gives the time that each driver starts each route and the time he finishes it. This board, which takes up one side of one room in the station, tells us at a glance the exact status of rock salt operations throughout Rochester any time of the day or night. We always know exactly where we stand, and so, when the need arises, we can shift our equipment around to meet any emergency.

Each driver has assigned routes, and carries a route slip which tells him exactly which streets and intersections to cover, and in what order to cover them. This slip carries his name, his helper's name, his truck number, the date, the time he begins and the time he finishes, and is signed by the dispatcher. If, for any reason, a piece of equipment breaks down while a driver is on the job, he is instructed to call in immediately. We always have a standby crew to send out in such emergencies.

In addition to these sheets, the dispatcher at each station keeps a record of routes that have been and are being covered, so that he can tell exactly what has been done and what remains to be done. By having our routes made out in advance, and by keeping a close check on operations by means of these sheets and the master control board, we reduce time-loss and maintain maximum efficiency in the operation.

The use of rock salt alone, instead of rock salt and cinders, last winter gave us cleaner streets, with no dirt or grit on them after the snow was removed. In addition, it eliminated the complaints we used to get from car owners whose cars were scratched and scraped by cinders. The tires would pick up cinders and fling them against the underbody or against a car following in the rear, cracking the paint and accelerating corrosion. Finally, we found that it is cheaper to use straight rock salt than it is to use salt and cinders; dollar for dollar, we get more for our money. To begin with, a load of straight rock salt will cover four or five times as much street surface as a load of cinders. In addition to that, we eliminated the cost of the cinders, the added expense of mixing them, and the cost of sweeping them off the streets and of digging them out of catch basins.

Important as these considerations are, however, the most important fact about rock salt is that it removes snow and ice, and keeps loose snow from packing and freezing. In previous years, we had to spend a good deal of money sending out crews with pick-axes to chop ice out of gutters, and we had a lot of trouble from street-flooding because gutters and catch basins froze up. All this is finished now. The rock salt we put on the streets keeps the gutters and catch basins open, and we have no drainage problem.

During the fall we always store a sufficient supply of rock salt to take care of our immediate needs. If we have any left over in the spring, we sprinkle it on the ground in ragweed areas. At the first rain it dissolves, sinks into the ground, and kills the weeds. If it is spread in the early spring, it will kill them before they appear above ground. It is harmless to children and to animals, inexpensive, and easy to apply.

SALT-CINDER MIXTURE (1947-1948)

	Per cu. yd.
Cost of cinders	
Delivered at storage yard	$1.40
Cost of piling	.20
Cost of salt added (150 lbs. per cu. yd. cinders)	.67
Cost of piling salt	.20
Cost of loading spreader at time of storm	.20
Cost of spreading salt-cinder mixture (8 yds. mixture, 3 yds. per mile; truck cost $.30 per mile; labor $1.95 per hour).	.43
Cost per cubic yard laid down	$3.10
Cost per mile for salt-cinder mixture laid down (rate: 3 yds. per mile)	$9.30
Spring-cleaning cost to remove cinders from basins and receivers at $.50 per cu. yd. (estimated), 3 yds. per mile	1.50
Total cost per mile for salt-cinder mixture	$10.80

STRAIGHT ROCK SALT (1949-1950)

Cost of salt (per ton delivered unloaded at storage yard)	$9.50
Cost of piling salt per ton	.20
Cost of loading spreader truck at time of storm per ton	.20
Cost of spreading salt per ton (12 tons salt, 1,000 lbs. per mile, truck cost $.80 per mile, labor $2.20 per hour).	.85
Cost of salt laid down per ton (Spreading rate: 2 miles per ton).	$10.75
Total cost per mile for straight rock salt	$5.38

$5.42 savings per mile
× 370 miles serviced

$2,005.40 savings each coverage during storm using straight rock salt.

NOTE: Rochester did not use inhibitor in 1947-1948, did use it in 1948-1949 and 1949-1950. If inhibitor is used, $.55 per mile should be added to both the above costs. The city uses National Aluminate's Nalco for inhibitor purposes.

New Orleans Moves Closer to Home Rule

THE Louisiana Legislature, at its 1950 session, approved a proposed amendment to the state constitution giving the City of New Orleans a home-rule charter. This will be submitted to the voters of the state at the November Congressional election. It establishes the present charter of the city as a home-rule charter and prohibits any subsequent Legislature from amending it, either directly or indirectly, except by a vote of the qualified electors of the city. The act further provides various methods by which the City Council or a substantial number of qualified voters of New Orleans may propose amendments or substitute charters in the future. In each case, such proposed amendments or substitute charters must be approved by a vote of the people in order to become effective.

The significance of the New Orleans Home Rule Act lies in the fact that the Legislature has reversed its previous position in reference to New Orleans, which in 1948 had the entire structure of its city government changed, revenues reduced, and municipal appropriations increased in punitive statutes adopted by the Legislature and signed by the Governor.

Under the new home rule amendment, the Legislature is prohibited from increasing appropriations for municipal or parish offices and boards unless approved by the city government.

In further aid to cities, Louisiana legislators also passed a bill permitting municipalities to levy a 1% retail sales tax, and a second bill to boost ad valorem taxes from 7 mills to 12 mills. New Orleans' share of state cigarette-tax collections was increased, in a third bill, from $650,000 to $1,200,000. Cigarette-tax money is distributed to Louisiana cities on a population basis, but previously a ceiling limited the share of any one city to $650,000. New Orleans was the only city affected. Now the ceiling is removed.

How To Build *Service*

By LADIS H. CSANYI
Professor of Civil Engineering
Iowa State College

IF A newly laid bituminous pavement begins to show early cracking, it should be watched carefully, but not repaired until traffic and warm weather have had an opportunity to exert their healing effects. If the cracks persist and open wider, one should determine the cause before making any repairs. If the cracks remain uniform, then crack-filling repairs may be undertaken. The crack filler used should be the same material as in the mix. Softer asphalts or "cut backs" can be used to attain deeper penetration and a better bond if desired. Incidentally, the use of softer asphalts in bituminous hot mixes tends to reduce cracking.

Where cracks are narrow, preventing the use of crack fillers, and numerous, patches may be readily made by the surface-heater method. This method employs a hood which contains one or more oil burners. The heat of these burners, reflected by the hood upon the pavement softens the mixture enough to permit its removal by rakes. The depth of heat penetration depends on the time that heat is applied, and is effective to depths of 1½ to 2 inches. The surface heaters are made either for manual operation or for mounting on special trucks. Small patches can be worked by small manual heaters having hoods about 4 feet by 6 feet in size. Larger patches may require several of these small surface heaters, or a large truck heater having a hood 8 feet by 8 feet in size. The depth of removal depends on the character and condition of the pavement. After the material has been removed, the area is covered with new material in the conventional manner.

Pavement Breakers

Bituminous pavement can also be removed with pavement breakers fitted with special asphalt cutters; or by hand using special double-bladed asphalt cutters. Either method works well on small patches in sheet asphalt and bituminous concrete pavements made of a wearing course and a binder course placed upon a base. When a bituminous concrete pavement made integral with the base is encountered, these methods remove the entire depth of pavement down to the subgrade.

Where the pavement is removed prior to placing new material into the opening, the sides of the existing pavement should be painted with a prime or tack coat. This operation is usually referred to as "painting a joint." In replacing a damaged area, the material used should preferably be of the same type as the pavement, and contain the same type of material. This is true also of the material used in painting a joint. In some cases cutbacks of the MC group may be used for this purpose in conjunction with pavements containing asphalt cements. The patch is completed in the conventional manner.

The asphalt surface heater offers a practical way of removing deteriorated asphalt. This one, a product of the Asphalt Maintenance Co., New York, is shown at work on a Brooklyn street.

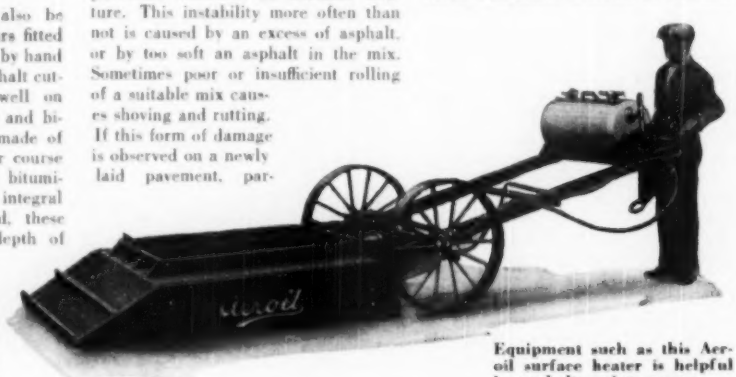
Rutting and shoving of a bituminous pavement indicates an unstable mixture. This instability more often than not is caused by an excess of asphalt, or by too soft an asphalt in the mix. Sometimes poor or insufficient rolling of a suitable mix causes shoving and rutting. If this form of damage is observed on a newly laid pavement, particularly in warm weather, it should be carefully watched, since the damage may be temporary. Traffic consolidates a bituminous pavement beyond the effectiveness of rolling. This traffic consolidation squeezes out excess asphalt in the mix, causing temporary instability and bleeding. As traffic squeezes the excess asphalt to the surface, it also carries some of it away on the tires. As time goes on, the pavement may regain its stability and traffic irons out the irregularities.

If the damage persists, then the area must be removed and replaced with suitable material. The procedure is the same in this case as in that discussed previously. At times surface heaters may be employed to remove the excess asphalt. This is a dangerous practice because the asphalt may be overheated and its cementing power destroyed. It is best to avoid this practice, if possible.

Bleeding

Bleeding of a bituminous pavement is almost always found wherever excess asphalt has been used in the mixture. If bleeding is not accompanied by rutting or shoving, it is of a temporary nature, and traffic will carry away the excess in a period of time. Bleeding is also frequently observed in a patch where an excessive quantity of prime coat has been used. Asphalt has the peculiar faculty of rising up through a bituminous pavement. At times this may cause bleeding while at other times it may cause failure through instability. By virtue of this character of bituminous materials it is good practice to use as little prime coat as possible.

Concrete pavements may be resurfaced with either concrete or a bituminous



Equipment such as this Aeroil surface heater is helpful in asphalt maintenance.

Into Asphalt Streets

nous mixture. On city streets there is one serious impediment to the resurfacing of concrete. To adequately and satisfactorily resurface concrete pavements with concrete, a minimum thickness of 4 inches and preferably 6 inches is required. When a bituminous surface is to be applied, a thickness of at least 1½ inches, preferably 2 to 3 inches, is required. Bearing these thicknesses in mind, the curb heights become critical.

If bituminous concrete is chosen, the character of the mixture should be densely graded, containing ⅜- to ⅝-inch nominal size, well-graded aggregate. The mixing may be either of the hot or cold type, plant mixed. City streets do not lend themselves to road mix or mixed-in-place types of construction. If sheet asphalt is selected, it should be of a good formula compatible with local aggregates. Either type may be laid either by machine or by hand, and rolled to the finished grade.

If the curb height does not permit the minimum thickness of bituminous pavements, but it is desired to prolong the life of the pavement for a short time, the thickness may be reduced to about ¾ inch by using a stone-filled sheet-asphalt mixture. This type of mixture will serve for a few years, after which time it may be burned off by surface heaters and replaced. This is purely a temporary expedient or a matter of emergency economies.

Curb Height Does Not Matter

The problem of curb height does not enter into the resurfacing of a bituminous pavement because the worn surface may be removed by the surface-heater method and replaced with new material laid back to the old grade.

The surface-heater method is particularly effective and efficient on sheet asphalt. For large operations, truck-mounted surface heaters should be used. These machines are usually fitted with a hood 8 feet by 8 feet, although slightly larger or smaller hoods may be secured. The 8-feet-square size was selected, first, because most vehicle widths are restricted to 8 feet, and secondly, because a longer hood becomes unwieldy. This hood contains an oil burner which is fitted with a series of horizontal nozzles. The burner receives its fuel from an oil pump, and air for combustion, from a blower both mounted upon the chassis of the truck. Either No. 2 or No. 3 fuel oil or kerosene may be used. The flame of the burner nozzles is directed against the specially designed sloping sides of the hood. The burner is adjusted so that the jet of the flame strikes only the hood. The hot gases are uniformly reflected by the sloping side of the hood onto the area under the hood.

It is important to avoid the actual flame of the burner striking the pavement, because this usually sets the asphalt afire, creating dense black smoke. In a city this smoke is a serious nuisance. Being of an oily character it defaces buildings, soils clothing and furniture and leaves an oily film of soot on everything. Furthermore, burning asphalt under the hood reduces the efficiency of the burner.

Actuated by Hydraulic Rams

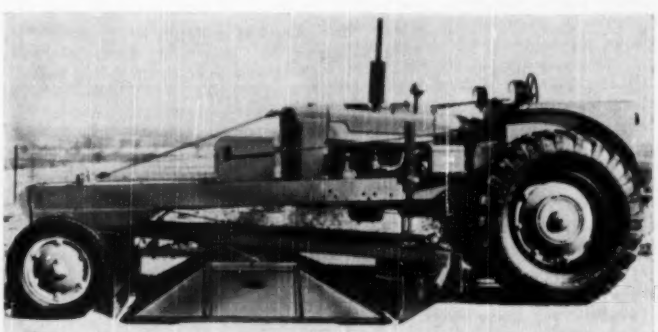
The hood, including the burner, is actuated by hydraulic rams, through mechanical or cable linkage. Three positions may be manually controlled; one, hood raised for transportation; two, hood lowered, resting on the pavement for heating operation; and three, the hood raised vertically off the pavement to permit clearance of manhole castings in moving the machine forward during operations. This third position is very essential in speeding operations and preventing damage to the hood.

All machinery, including the fuel pumps, air blower and the hydraulic hood-lifting rams are operated by an auxiliary engine mounted upon the truck chassis. The truck itself is operated by an auxiliary clutch while in heating operation. All controls for heating, hood handling, auxiliary clutch and truck throttle are mounted upon the side of the vehicle so that the operator may stand on the pavement and control both the heating operation and the forward motion of the vehicle.

On sheet asphalt one heating taking about 30 seconds, after the hood is warmed up, will penetrate about ¾ inch to 1 inch. The truck is stationary during the heating of the pavement. Upon completion of the heating, the hood is raised to its position 6 inches off the pavement, and the truck moves forward until the hood is in position to make the next heat, then the hood is lowered to the pavement for the next area. A 6-inch lap is usually made on heated areas. An average of 2,500 square yards of pavement surface may be heated, ready for removal up to a depth of 1 inch per average eight-hour day. Lesser depth of penetration will increase output.

As soon as the heater has heated an area, the asphalt surface is raked to one side and allowed to cool before being loaded into trucks for disposal. After a large area of the surface has been so treated, it is resurfaced to original grade with new material. No prime coat is required. At times, joints and curb face in contact with the pavement are painted. Here again the painting should be done with the same asphalt used in the paving mixture.

Bituminous concrete pavements may be similarly treated in resurfacing. In this case, however, the depth of the pavement removed should slightly exceed the size of the largest stone used in new mix. Thus a surfacing mixture containing ⅜-inch nominal-size stone should have a depth of ¾ inch. Similarly, a mixture containing ⅝-inch stone, 1-inch, and ¾-inch stone, should be 1¼ inches deep. The procedure is



This fuel-oil-fired heater-plant trims the surface as it removes deteriorated asphalt. Machine is a product of the Asphalt Maintenance Co., New York.

the same. However, more rakers are required because the handling of the stone which interlocks in a bituminous concrete is a little more difficult than the removal of sheet asphalt.

Many large cities, such as New York, Washington, Boston, Kansas City, and others, use this method of resurfacing bituminous pavements almost exclusively. The machines may be purchased from the manufacturer, or may be rented from local contractors on the basis of a square yard of pavement heated or repaired.

Heater Planer

There is another type of surface heater which operates continually. This machine incorporates a cut-off blade, like that used on a blade grader, to remove the heated material to proper grade. This machine saves much labor and effort in raking off the old surface, and is very efficient on roads or streets that are not cluttered with manhole castings. It is apparent that this machine cannot cope with manholes; it is used for resurfacing bituminous streets and highways in many states.

Where sufficient curb height is available, resurfacing of bituminous pavements may be done by laying the new surface upon the old. In this case, however, a prime coat should be used to permit and improve bond between the new and old surface. It is preferable, however, when resurfacing bituminous pavements that the surface-heater method be used. As bituminous pavement ages, the bituminous binder in the mixture hardens, making the pavement more brittle or less plastic. Thus, it is better to remove this surface down to a depth where the bituminous binder is still alive. This is accomplished by the surface-heater method, which tends to yield better results in resurfacing.

Flexible Pavements

Frequently bituminous macadam pavements require resurfacing. Several methods may be used in this procedure. First, the old pavement may be used as a base for a higher type of surface, such as sheet asphalt or bituminous concrete. This is good practice at locations where traffic has increased both in volume and weight, necessitating an improved surface to meet this requirement. Second, the old pavement, if structurally sound, may be treated with one or more seal coats, as deemed advisable.

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Needed: More Harmony Between Industrialists and Planners

By COL. ALEXANDER R. HERON *
Vice-President
Crown Zellerbach Corporation

THE typical modern American city is the result and the product of industry. Its population depends upon industry to provide a means of livelihood, and to provide income beyond mere livelihood. It depends upon industry to bring to the residents and citizens the measure of income which will make possible, for the city as a whole, the facilities for good living and the more abundant life. The city plan which gives inadequate attention to the welfare of industry is a plan for a saper-structure without foundation or reinforcement.

Perhaps the phase of the planning function with which I have had closest contact is that which deals with the general problems of urban redevelopment. It is a phase which frequently produces conflict between the interests of industrialists and planners. It may produce conflicts between the interests of people as industrial workers, and the interests of those same people as citizens and residents. The partially blighted and obsolete residential area has long been looked upon as the proper field for the planting of light industrial establishments. The obsolescence and partial blight have frequently provided the convincing argument for the release of zoning restrictions.

To Solve Conflict of Interest

When a modern and practical program of urban redevelopment is initiated, it must solve this conflict of interest. It is an idle gesture to rehabilitate an area so as to provide wholesome residential opportunities, and at the same time to hamper or eliminate the potential industry which should provide the living income for the very people who are to occupy the redeveloped area.

There is, perhaps, no simpler situation to show the compulsion of harmony between city planning and industrial planning. The redevelopment of a blighted area, which involves the exclusion of light industry, must involve a corresponding provision of adequate locations for the industrial employment of the people concerned. The surrender of a blighted area to light industry forces the planned creation of adequate and accessible housing for those residents whose homes are made socially undesirable by the coming of industry.

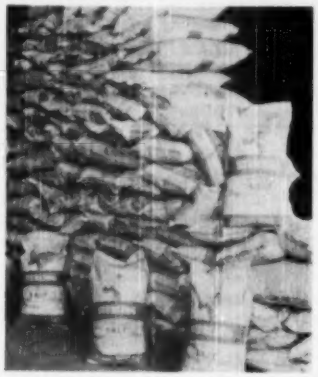
In some conflicts, the intelligent city plan must give preference to the interests of industry, and the economic welfare of all the people, over the esthetic and recreational benefits. Sometimes the income of wage earners in a factory must be given greater weight than the pleasure of fishermen or swimmers. Sometimes the water supply for an important industry must take precedence over the expansion of green lawns and shrubbery in parks and playgrounds. With a growing understanding of the place of industry in the city plan, these conflicts need not bring a permanent choice of factories over fisheries, or payrolls over parks. Industry can be taught that the long-range results of good industrial development must include good facilities for recreation. The recreational enthusiast must be taught that the crippling of industrial development in the interest of parks and playgrounds can mean eventual starvation for those projects.

All groups must learn that modern science has outlawed industrial development which disregards or destroys the beauty and wholesomeness of a community. All must learn that a modern city can wisely plan its land use so that all the functions of a city can be performed, each in its proper place. To me, the city plan is an organization of the land and operates in such a way that each function can ultimately develop to its proper balance; it is a body which will bring about a structure whose foundation is a sound local economy, whose framework is an adequate system of internal and external transportation and whose fruits are health, culture, and recreation.

* From an address on "Industry in the City Plan" presented at the National Planning Conference of the American Society of Planning Officials in Los Angeles August 15.

A New Course On Municipal Problems

A new approach to teaching citizens about problems and politics of cities will be inaugurated this fall at the New School for Social Research, New York. Classroom lectures on key problems that confront municipal administrators and legislators will be made real for the adult students through bus trips to city installations and departments, where leading city officials will explain their work. Facets of the city scheduled for study include "where the money comes from and where it goes," the role of the political boss in the city government, welfare services, schools, police, housing, transportation, and planning. The course is being conducted by Joseph P. Lash, *New York Post* columnist.



To keep streets open at all times in spite of winter storms, Joseph A. Vogler, Director of the Department of Streets and Public Improvements in Harrisburg, Pa., builds up a stock-pile of rock salt during the summer, and keeps a reserve on hand all winter.

How Harrisburg, Pa., Clears Snow

Program built around the use of rock salt to keep the snow easy to move

By JOSEPH A. VOGLER, *Director*
Department of Streets and Public Improvements
Harrisburg, Pa.

This Tarco Scotchman is one of the three automatic rock-salt spreaders which are used in Harrisburg, Pa., as part of the city's snow-removal equipment.

IN SPITE of several severe snow and ice storms every winter, Harrisburg has never had a traffic tie-up in recent years, although, as the state capital, the traffic is heavy day and night, especially in the downtown area. Even after the heaviest storms, it never takes us longer than 36 hours to remove all snow from this *entire* central district. Speedy and complete removal is essential there, because those main streets provide parking space for motorists and, in addition, bring in revenue from parking meters for the city. Our winter-storm program, based upon the use of rock salt, not only saves money for the city through efficient, low-cost snow removal, but also earns money by providing for continuous parking-meter operation.

Since we concentrate upon keeping streets open around the clock, we build up a stock-pile of rock salt during the summer, and keep a reserve supply of it on hand throughout the winter months. We have found that rock salt is the most economical material we've ever used for snow and ice removal; it also does a better job than anything else we know about. Although we mix it with abrasives for use on streets during snow and ice storms, we apply it as is to all bridges and bridge approaches.

Rock Salt Digs In

Used either way, rock salt digs into snow and ice, breaks them up, and, in the case of light snowfalls or freezing rains, removes them completely, giving us bare streets in a minimum amount of time. With heavier snowfalls rock salt keeps the snow from packing and freezing to the streets and, by making it easy to remove, saves time and money.

Every winter we have a lot of freezing rains and light snowfalls, which are more dangerous than heavy snows because they often catch motorists unprepared. For that reason, such storms require fast action on our part. During and after these storms, use of rock salt is especially important because it keeps a slick film of ice from forming on the streets.

In Harrisburg, we have 183 miles of paved streets to keep open, including main highways that run through the city, and several bad hills. The job takes quick work and careful organization. We check regularly with the Weather Bureau and the airports so that when a storm is approaching, we can get the jump on it. During the summer we set up a series of schedules and routes for our drivers to follow, depending on the type of storm, and whether they are to use straight rock salt or the mixture of rock salt and abrasives. When a storm hits, the men begin operating automatically on these schedules.

As soon as the snow reaches a depth of 2 inches, we begin to plow. We have as fine and as much snow-fighting equipment as any third-class city in Pennsylvania:—three automatic spreaders, two for rock salt and abrasives, and one for rock salt alone, 13 trucks for plowing, and six trucks for cindering.

With a combination of careful organization, good equipment and materials, and fast action, we have found that we can handle anything the weather brings. We concentrate on giving efficient public service. Apparently we succeed, for the people like our work.

Urban Progress in Latin America

By ANATOLE A. SOLOW, *Chief, Section of Housing and City Planning, Pan American Union*

Planning and reconstruction after disaster

"ECUADOR plans reconstruction of cities destroyed by earthquake." "Cuban government proposes rehousing of families from areas devastated by hurricane." Newspaper headings of this type frequently refer to major catastrophes in Latin America where many countries are exposed to serious earthquakes or dangers from hurricanes, floods, and other natural hazards.

During the past 18 months alone, earthquakes have taken the lives of thousands in the Tungurahua Province of Ecuador, destroyed Cusco, a city containing the most important art treasures of Peru, and leveled entire towns in Colombia. Last year floods in Guatemala and Costa Rica drowned hundreds, disrupted communications, and inundated several cities. Cuba, the Dominican Republic and other Carribean countries are known to be exposed to vicious hurricanes almost every year.

No wonder, therefore, that planning for reconstruction after natural catastrophes assumes major importance in many Latin American countries. The first steps after a disaster are inevitably directed toward emergency measures: temporary shelter, distribution of food and clothing, provision of medical supplies, and sanitary services to prevent the spread of epidemics. Emergency measures are of course vital, but what of the long-range planning and reconstruction? That part of the job is only too often neglected, or entirely forgotten after the first enthusiasm of cooperative endeavor has petered out.

Each reconstruction job is a test of the people to plan their future in an enlightened and rational way. The study of past history shows, interestingly, that only in the rarest instances are people willing to abandon their destroyed communities in search of safer sites. And often the reconstructed cities are poorer in layout and amenity than the old ones. Yet, in recent years there appear hopeful examples, such as the ones described below, of sound planning for reconstruction. Advantage is being taken of the opportunities for creating a better and safer environment, and the job is often entrusted to imaginative, competent, and well-trained planners.

Master plan for the Reconstruction of San Juan, Argentina

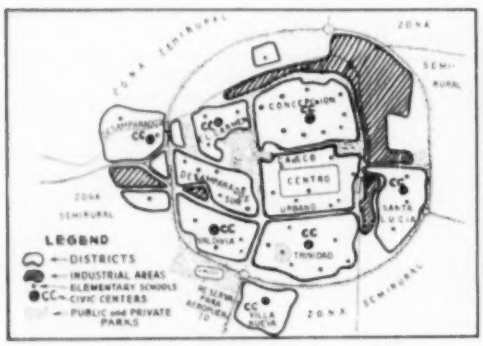
In January 1944, an earthquake destroyed San Juan near the Chilean border, a city with 82,000 inhabitants and another 63,000 in the wider metropolitan area. Several technical commissions, composed of teams of planners, engineers, and architects, went to work on the preparation of a master plan which included such elements as land-use distribution, a civic center, public buildings, open spaces, a transportation system, a central business area, residential neighborhoods, and the regional relationships.

The physical plan was accompanied by studies of the social structure and the economic base of the community, and by zoning, subdivision, and building regulations. The plan organizes the city around the "urban center" in the form of districts with a population of 10,000 to 20,000, which are in turn broken down into residential units of 1,000 to 5,000 people. The plan was officially adopted by the specially created Council of Reconstruction of San Juan and became law in 1947.

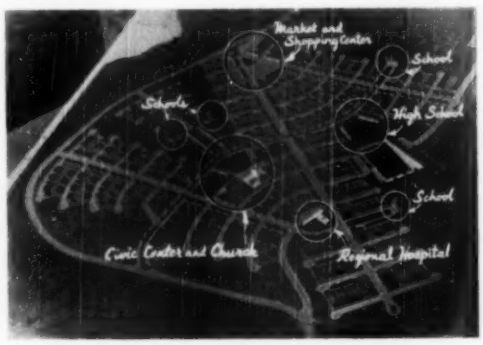
Plans alone are not enough; the crucial test is their translation into reality. San Juan is withstanding this test successfully. By 1949, housing, schools, and public buildings, estimated at 40 million pesos (one peso equals approximately 16 U. S. cents), were completed, the urban center was partially built and many highways, principal arteries and public services were under construction, all according to the master plan.

Planning of the Earthquake Regions Of Ecuador

On August 5, 1949, an earthquake struck the rich Ecuadorian provinces of Tungurahua, Chimborazo, and Cotopaxi, located on the high plateau between the two main ranges of the Andes. In Ambato, the nation's third industrial and commercial center, it was estimated that over one half of the houses were no longer safe to live in after the earthquake. Not one house was standing in



Schematic drawing of master plan for City of San Juan, Argentina, on which construction is proceeding rapidly.



The new Pelileo, Ecuador, being built on a safer site near former city, which was leveled by 1949 earthquake.

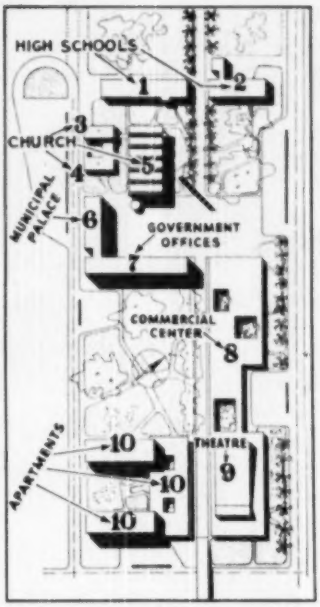
Pelileo, an agricultural center. Of its 10,000 people, over half were killed. Those two cities had been previously destroyed three times, yet the people refused to move because of the commercially and agriculturally favorable location.

The most effective emergency measures were taken at once. Neighboring countries flew in medical supplies and food. A temporary town was constructed, houses being built quite effectively of straw mats. Safe water service was provided by the Servicio Cooperativo, a sanitation and health agency maintained jointly by the Ecuadorian government and the U. S. Institute of Inter-American Affairs, setting a most effective and practical example of international cooperation.

However, the most exciting part of the reconstruction job, in which President Galo Plaza is taking personal leadership, is the long-range regional and city planning. First, Regional Reconstruction Boards were set up in each province. A national tax on liquors, cigarettes, etc., was introduced to provide the necessary funds. The task of drawing the plans was entrusted to Messrs. Garces, Duran, and Roreno, three engineers and architects who had studied city planning at Illinois Tech, Columbia University, and London respectively. Starting with thorough regional surveys, the planners have completed plans and models for Ambato, Pelileo, and scores of other smaller communities.

The model of the new Pelileo is typical of the work being done. The community is complete with school, health center, playgrounds, and athletic fields, most of the one- and two-family houses and row units facing dead-end streets. Here, contemporary city planning techniques have been intelligently applied to local topographic conditions and social needs.

Two factors are of utmost importance in limiting destruction from earthquakes. These are better construction methods and location on safer sites. Mr. Lewis, an engineer with the U. S. Geological Survey, was called to select new sites for the destroyed communities. While it was found impracticable to remove Pelileo at any considerable distance, Mr. Lewis recommended a new location within a couple of miles from the original site, which should be considerably safer due to better topography, subsoil conditions, and water table. As to construction methods, experts agreed that up to 75% of the casualties and damage was caused by poor construction methods, such as unreinforced rammed-earth walls and heavy tile roofs that collapsed at the slightest quake. Mr. Brunier, world-known authority on earthquake engineering, of San Francisco, was called in and together with local engineers prepared a model building code which was adopted by national decree for all earthquake regions of Ecuador. This code will also be distributed by the Pan American Union to serve as guide to other South American countries. The assistance of Mr. Lewis, Mr. Brunier, and other experts was made possible through a special fund of $200,000 set aside by the Organization of American States for technical assistance in reconstruction planning in Ecuador.



Interesting civic-center plan for Tumaco, Colombia. This port town was destroyed by fire in 1947, and it is now being relocated on a new site.

New port of Tumaco In Colombia

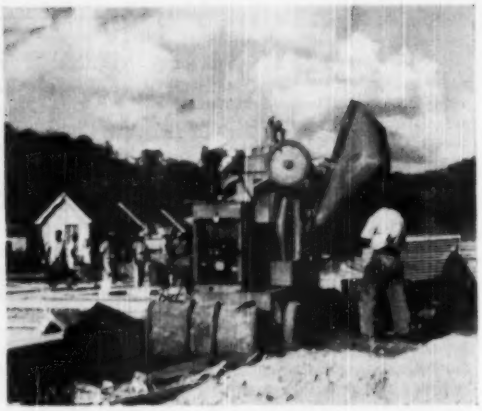
A truly modern port town is planned for construction on the Pacific coast of Colombia to replace Tumaco (urban population 12,000) which burned down almost completely as a result of a major conflagration in 1947. Taking advantage of the opportunity, the port facilities, together with the town, are to be relocated on a new site which offers many more favorable conditions than the old one.

The entire project was entrusted to the Office of National Buildings of the Ministry of Public Works, and resulted in a cooperative effort by a group of Colombian architects and planners, assisted by the Colombian subsidiary of the Frederick Snare Corporation, and by Paul Lester Wiener and Jose Luis Sert, who acted as planning consultants and who at the present time are advising on master plans for Bogota, Cali, and Medellin, the largest cities of Colombia.

The planning project consisted of the following parts: the master plan for Tumaco as a whole; proposals for new housing types; study of the community center and public buildings; extension of railroads; new airfields; new docks, warehouses and port facilities, and a new military naval base.

The plan shows excellent elements of realism in combination with a broad vision of the future. Residential units are designed for 300 families each and the minimum plan is strictly geared to

These drums are not an up-to-date water-supply system, but they help meet the water shortage in a temporary town for the earthquake victims of Pelileo. Emergency needs were met by "Servicio Cooperation," an agency run by the Ecuadorian government and United States Institute of Inter-American Affairs.



Studying model for the new town of Castries are (left to right): John Rose, executive architect for Windward Islands; Eric Mitchell, site representative, Colonial Development Corporation; Honorable Allen Lewis, LL.B., Chairman of the Castries Town Board; Frederick Dezagon, LL.B., Committee for Reconstruction of Castries; and Honorable Francis Carasco, Chairman of Central Housing and Planning Authority. At right, cement mixer is an encouraging sight. A building yard was set up in northeast section of town, giving Castries' people new hope that a year's unemployment and overcrowding has come to an end with the start of building program.

the $5,000,000 set aside by the government for the reconstruction of Tumaco. At the same time possibilities for expansion are generously provided for residential areas as well as for the community facilities, taking into account the fact that the port serves a hinterland with tremendous resources yet to be developed.

The design of housing meets existing social conditions, such as an average family size of 8 persons, and a very suitable type of unit plan provides the possibility of combining small workshops and dwelling space, a pattern of living and work typical for many communities of this size in Colombia. A system of pre-cast concrete construction is being used and the building of housing facilities has been given over to the Instituto de Credito Territorial, Colombia's national housing agency, and to a number of housing cooperatives, the organization of which is well advanced.

It is in this kind of long-range planning after disasters that we see at its best the spirit of cooperation at the community level and between countries.

Caribbean Island City Rebuilds

Castries, capital city of St. Lucia, in the Windward Islands (one of the Lesser Antilles group in the Caribbean), is being rebuilt after the fire which in June, last year, destroyed four-fifths of the city and left 2,292 of the inhabitants homeless. The two-year plan for rebuilding Castires as a modern city has been undertaken by the British Colonial Development Corporation. Public funds to £700,000 ($1,960,000 at present rates) have been made available for rebuilding purposes.

All-Native Alaskan Community Makes New Progress

METLAKATLA, Alaska's unique and most prosperous native community (See THE AMERICAN CITY, May 1941) will mark off another milestone in its remarkable civic growth by embarking this winter on a $300,000 public-works program that will see construction of a new school and a new road system.

The news comes as no novelty to nearby Southeastern Alaska residents, who have ceased to be amazed at the growth of the all-native town since its founding in 1887 by the Rev. William Duncan, an English missionary.

The Tsimshean Indians have turned the tip of a wilderness island into a modern community of 850 residents. The tribal-operated cannery is rated one of Alaska's best. Profits have financed a hydroelectric system, completed in 1927, that furnishes free light and power to Metlakatla residents.

They also have provided the town with a clinic and a community center. Metlakatla has no bars—nor does it have taxes or any form of financial assistance from federal or other outside sources, with the exception of its schools. The Alaska Native Service pays the salary of the school principal; the salaries of teachers are paid out of town funds.

This year, its twelve-man council, headed by Mayor John Smith, former Metlakatla school teacher, voted to replace the town's outmoded planked "duckboard" road system at an estimated cost of $175,000. At the same time, the council voted to furnish $60,000 of a $120,000 construction cost for a new school addition. Remainder of the school's cost will be borne by the Alaska Native Service.

The new road system will see the end of what wags have termed "Metlakatla's straight and narrow." The reference was to the system of raised wooden roadways, only slightly over 5 feet wide, that have served as highways since advent of cars to the island following the war. Included in the project will be a system of concrete sidewalks.

On application with the Rural Electrification Administration is a $650,000 loan for construction of a new hydroelectric system at the foot of Purple Mountain Falls, present source of power for the community. With electricity free, virtually all residents cook and heat this way.

Also under consideration in Washington, D. C., is a breakwater project, installation of which will give more protection to the community's ever-growing fishing fleet.

Nearing completion is a $275,000 tribal-owned lumber mill that will supply much of the timber for the public-works program.

The town manages its own enterprises, and with the exception of its two ministers and a cannery superintendent, no white person is allowed overnight on the island without special permission of the council.

Dayton Boosts Trickling-Filter Capacity

Improvement is part of general rehabilitation program for sewage-treatment plant

Half the trickling filters in the Dayton plant can be seen in this photograph.

THE trickling filters were the bottleneck at the Dayton, Ohio, sewage-treatment plant.

The filters were built in 1935, after stream studies by the Ohio Department of Health indicated that the primary-treatment plant was not providing sufficient purification to prevent damage to the Miami River. At that time 20 filters, each 165 feet in diameter, with 7½ feet of blast-furnace slag for filter media, were constructed along with six final-settling tanks, each 80 feet in diameter with a 9-foot sidewall depth. The work was completed in November 1938.

However, four years later, the City's Division of Sewage Treatment realized that volumetrically the beds would have to be enlarged. This is being accomplished by increasing the capacity of each distributor, adding new supply lines to four dosing chambers, and rearranging the filter drains. Installation work on four of the large Pacific Flush Tank rotary distributors was started in 1948 and completed in September 1949. This provides a 12-mg increase in trickling filter capacity, or a total flow of 52 mgd. The program contemplates the installation of four more large distributors in 1950. This will give an hourly capacity of 2.7 mg, or a total flow of 64 mg, during a 24-hour period. The filters were originally designed to handle 32 mgd.

Increase of Sludge Volume Presented Two Problems

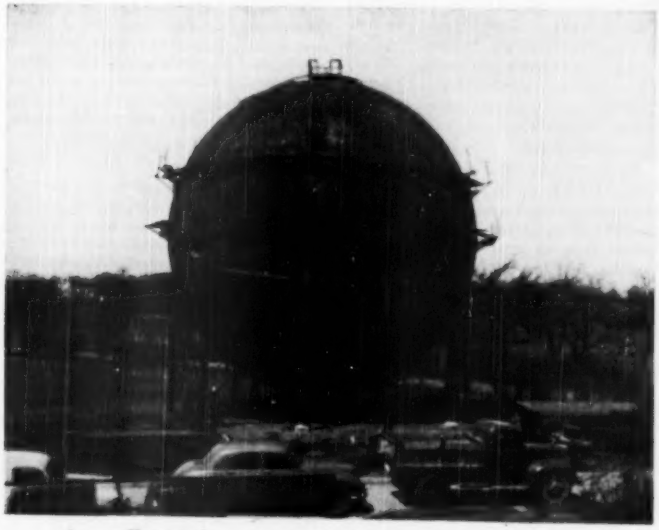
Sludge volume has been another difficulty at the plant. During 1942 the volume increased 29% in the raw sewage and 22% in the digestion compartment of the Imhoffs. This caused a return of the digestion-capacity problem and presented another problem — that of sludge-drying capacity.

The latter problem was solved in 1942 by adding 71,000 square feet of drying beds. The former is being solved by the construction of four large digestion tanks. Each tank was designed 85 feet in diameter with a sidewall depth of 30 feet, having a capacity of 1,250,000 gallons of sludge with provisions made to keep the contents at 95° F. constantly. Under these conditions 90% digestion can be obtained in 21 to 26 days, while in the Imhoff tanks, with no provision to heat the digestion compartment, 56 to 65 days are required for the same degree of reduction.

The digestion tanks were completed with all accessories in April 1949. To make gas utilization more flexible, the city has acquired a new 50-foot-diameter Hortonsphere that will increase gas storage by 300%.

In 1944 plans were prepared for automatic operation of the humus-pumping station, the clarifiers in the final settling tanks, and the sampling of the filtered and final effluent. This project was completed in December 1947, and the net savings paid for all costs in 1½ years by the reduction of operating personnel.

The plant operates under the direction of Lloyd C. Huffman, Sewage Treatment Plant Superintendent.



A new Hortonsphere goes up to increase gas-storage capacity.

The Effect of the International Situation On the Public Housing Program

By WARREN J. VINTON
First Assistant Commissioner
Public Housing Administration

A NEW incentive to local officials and housing authorities to speed their low-rent public housing plans has resulted from President Truman's housing directive of July 18. These instructions to the Housing and Home Finance Agency and other Federal agencies concerned with housing were designed to cut back residential construction to the extent necessary to conserve critical materials and to lessen the dangers of inflation.

IN THE case of publicly financed housing, the President limited the number of units which could be put under construction during the second half of the calendar year 1950 to a total of 30,000 dwellings. The method of curtailing privately constructed housing was by tightening credit for home financing purposes.

This action was taken in the light of the seriousness of the present international situation and the threat it represents to the basic security of our nation, making it essential that the housing program, like all major programs of the Government, be adjusted to meet realistic current and developing needs.

A 25% Cutback

The 30,000 limitation represents an estimated cutback of about 25% from the volume of public housing it was anticipated would reach the construction stage during the rest of the year. This means, therefore, that some local housing authorities may not be able to take their programs into the construction stage during 1950. At the present time, however, and until such time as the 30,000 mark is approached, the Public Housing Administration does not contemplate any system of allocations. The units will go to communities as they are ready to proceed into the construction stage. Later, when the picture of our defense efforts becomes clearer and a large share of the 30,000 units has been assigned, a priority system may become necessary.

New Incentive to Speed Local Action

Meanwhile, each city has a new incentive to move forward with its low-rent public housing plans. Just as the race is to the swift, so will the prize of approval fall to the local housing authority that completes its development program at an early date, and shows its readiness to put the project under construction without further delay.

Reports from local housing authorities, based on surveys of the housing situation in their communities, show that the need for the low-rent housing program is no less today than when it was authorized by the Congress. Restrictions upon progress of the low-rent program will be only such as are justified by defense requirements. Within the 30,000-unit limitation, the PHA will continue to enter into annual contributions contracts with local housing authorities as rapidly as they are ready, but will regulate its authorizations thereunder to advertise for construction bids and award construction contracts, so that the number of dwellings on which construction is actually started on or before December will not exceed 30,000 units. This will control the volume of construction to the level directed by the President.

By permitting the local authorities to proceed with the planning and other preliminary steps under the loan and annual contributions contracts, the public housing program will be in a position to move forward to the extent that defense requirements indicate. While thus proceeding under its statutory authorizations with all steps up to the actual letting of construction contracts, the public housing program will be subject to reexamination from time to time to assure that its activities do not conflict with the larger objectives of the nation.

The widespread acceptance of the low-rent public housing program is evidenced by the fact that as of August 4, 1950, a total of 302,158 units had been reserved for 607 localities in 39 states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Virgin Islands. A program reservation is made on the basis of an application submitted by the local housing authority. It sets aside a stated number of dwelling units for the authority for the first two years of the six-year program. It also is an indication of PHA's intention to hold for the authority sufficient federal loan and subsidy funds to provide for the development and operation of the number of units reserved.

Cooperation Agreements Signed With 369 Localities

Cooperation agreements which represent the final necessary step in a community's acceptance of the program had been signed with 369 localities involving 225,282 units. By the same date, final contracts for the development of 81 projects with a total of 27,644 units had been given Presidential approval.

In accordance with the spirit of the President's directive concerning "the use of materials and other resources needed for the defense effort," a policy has been announced with respect to all property under the jurisdiction of the Housing and Home Finance Agency other than low-rent housing. This provides for a temporary suspension of its disposition of public war housing, authorized by the Lanham Act and related legislation, which was built by the Government during the war period for war workers in centers of industrial production and military activity. The operation and disposition of this housing is the direct responsibility of the Public Housing Administration.

Under the suspension order, the sale, transfer, demolition, or other disposition of the war and veterans re-use housing under the Agency's jurisdiction (with the exceptions hereafter mentioned) are held in abeyance. By retaining control over such housing, the Federal Government, through the HHFA, will be in a position to make these facilities available for any defense requirements, as well as to determine admission policies and to give top priority, to the extent that the law permits, to families of workers engaged in defense activities and to military personnel.

About 354,000 units of housing provided under the Lanham Act are still under the jurisdiction of the Federal Government and subject to disposition. Of these units approximately 217,000 are of temporary construction, and 137,000 are permanent

structures. Since the war, priority for admission to these units has been given to veterans and servicemen. The suspension order applies to the bulk of this number, except where there are existing commitments for sale or transfer of any units.

Under the Housing Act of 1950, orderly procedures for the disposition of war housing and veterans re-use housing were established. Temporary units could be transferred outright to local communities upon their request for continued use as veterans' housing; temporary units not so disposed of would be removed from their sites, which usually would mean their demolition. Permanent units could be transferred to local communities for low-rent use, if requested and found suitable for such use, or could be sold to non-profit organizations, or to other private buyers.

Under the suspension order, local communities may continue to make applications for the transfer of projects for which they are eligible, but no final action will be taken by the Agency on such applications until exceptions or modifications may be made in the new order.

The suspension order applies not only to dwellings but also to land owned or leased by the Federal Government and acquired in connection with war housing which might be available for defense uses, particularly sites on which there are improvements (such as underground utilities or streets) which would facilitate the use of such sites.

Nearly all of the housing affected by the order is operated through the Public House Administration, a constituent of the HHFA, on assignment by the Administrator, and much of it is managed locally by local housing authorities acting as the agents for the Federal Government.

The low-rent public housing program being administered by PHA is not affected by the suspension order. Also, in a separate special classification are the two greenbelt towns remaining under federal jurisdiction and comprising 2,600 units; the few remaining Subsistence Homestead units; and certain defense projects committed when built to eventual ownership by mutual housing associations. The disposition of these special projects is subject to special legislative provisions.

The fact that most of the major responsibilities for urban housing and home financing are now centralized in the Housing and Home Finance Agency, has enabled the Federal Government to move swiftly in accomplishing initial steps to conserve critical materials and to curtail housing credit.

Albert Lea Burns Its Bonds

ALBERT LEA, Minn., "The City That Plans Its Future," burned the papers representing the last of its general obligation debt in a unique and well-arranged ceremony presented in cooperation with the Rotary Club of the city on June 23.

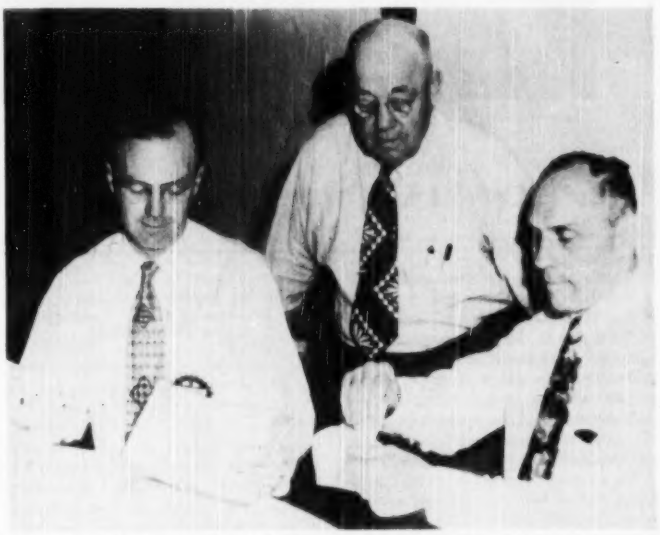
The program took the form of a three-act skit which involved meetings of the 1929 council, when C. C. Ludwig, now executive director of the League of Minnesota Municipalities, became Albert Lea's first city manager and laid out a financing program to work off the city's staggering debt burden. The scene then shifted to a 1945 council meeting when there was some refunding to save interest costs. Finally, a meeting of the present council took place, with the bonds retired about six months ahead of schedule.

Dr. William Anderson, of the University of Minnesota, who assisted in drafting the charter, then made a short speech generally complimentary in nature, and the bonds were burned. The entire program was recorded for broadcast over the local radio station, KATE.

Particularly interesting was the fact that three of the four mayors since 1929 were in attendance and acted in their original capacities, as did four of the five city managers. The secretary of the council in 1929, Miss Ila Dudley, is now city clerk-treasurer, and she officiated in her role just as she did in 1929.

Warren C. Hyde, Albert Lea's present city manager, who arranged the program, described the city's sound financial condition today, contrasted with the 1929 situation when the debt totaled $761,110, for an estimated population of 10,000. Sizeable reserves now exist for future improvements. In the 1950 budget, the Mayor and Council started a pay-as-you-go plan by levying $15,000 as a public-works-reserve item.

The construction of a modern, complete sewage-treatment plant will be financed by revenue bonds to be paid for from sewer-service charges rather than a general property tax. Other projected improvements will be built primarily on a pay-as-you-go basis.

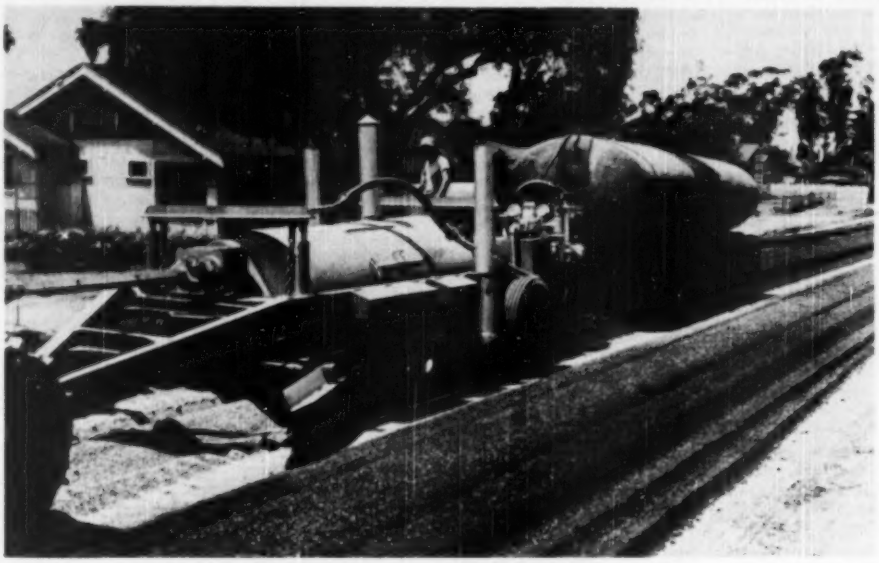


Destroying all of the general obligation debt are, left to right, Warren C. Hyde, City Manager from 1947 to present; James C. Nelson, Mayor of Albert Lea, who was also a member of the 1929 Council; and C. C. Ludwig, City Manager, 1929-1933, now Executive Director of League of Minnesota Municipalites.

Suggestion for Inscription on a Commemorative Tablet

As they died in war to save democracy, may we, their fellow citizens, so live that democracy shall win the world to friendliness and peace.

Mixed-in-place construction produces long-lived paving for half the city's streets



Long Beach's new Wood road mixer processes a windrow of surfacing preparatory to improving another portion of the city's 530-mile street system.

Low-Cost Streets in Long Beach, Calif.

By JAMES KINCAID
Director of Public Service
Long Beach, Calif.

LONG BEACH has a policy of low-cost, long-life streets built with city forces. It was initiated in 1940 when we purchased a Wood road mixer to put new life into a great portion of our 530 miles of streets. After 10 years of heavy-duty service, we have replaced the mixer with a new model, and have put the old-timer into semi-retirement.

We adopted the practice of road mixing at a time when the need was urgent. Approximately 50% of the dedicated streets were paved with portland cement containing concrete or asphaltic concrete; the remainder were surfaced or had been treated with some form of blade-mixed surfacing, utilizing at times, for the purpose of economy, sump oil and other residues accumulated in the oil fields in and surrounding the city. The result, as can be imagined, was not much more effective than a dust palliative. The streets could not stand the increased automotive traffic.

Road mixing of existing roadside materials was the first corrective step. During the last 10-year period, we have learned much and have made many changes in the selection of aggregates and oils, and in road-mixing procedures.

It is interesting to examine many of the city streets, where material just as it existed, was processed through the road mixer. Almost every type of soil is encountered here, and when mixing began, some was already impregnated with materials from the oil fields that were more of a lubricant than a binder. Where this condition was not too bad, the soil was also processed without resorting to removal of the material or the addition of any imported aggregate. It was a case of sink-or-swim in an effort to keep abreast of the needs of the community.

Excellent Durability

Many of these streets, after 10 years of service in the residential areas, are still in good condition, and in this past 10-year period approximately 80% of the 250 miles of earth streets have received this treatment. With each passing year, the pressure has lessened as the program of street construction by road mixing of 20 miles annually was maintained. Thus we were encouraged to introduce better specifications and better methods, with time and speed becoming increasingly less important.

Long Beach, in the first place, has every year a long period of favorable weather for this type of work. It is not unusual for the season to extend over seven months. Beyond that period, a slight drop in temperature and an increasing moisture content in the air does not permit the best results. Proximity to the Pacific Ocean is the underlying cause of this excessive moisture. It is difficult, under such circumstances, to work out moisture in windrows of aggregate in the daytime, that have accumulated there during the hours of darkness.

We now use slow-curing oils almost exclusively, with emphasis on SC-4 mixed with either decomposed granite or, preferably, crush gravel. This is generally capped with a two-course seal coat after a few weeks of curing.

The results are good. There now remains only a relatively small per cent of the city's earth streets that have not received this treatment. We are able to do it without any direct assessment of the benefited properties. State gasoline-tax money and general-purpose funds provide the necessary financing.

QUIZ
For Firemen and Municipal Officials

BELOW are some questions and answers sifted from 333 contained in Bulletin 119 of the Engineering Extension Service of Iowa State College at Ames.

1. Q. *Is there any program or system set-up in which the number of volunteers in a fire department is established by the population of the town?*

   A. The number of volunteers in a fire department is not dependent on the population. In Iowa, the state-wide average is about 20 volunteers per department.

2. Q. *Is it good policy for a small department to pull a false alarm once in a while, unknown to anyone?*

   A. NO! Do not pull false alarms. Make every effort to protect the well-being of fellow firemen from the tragedy that may follow false alarms.

3. Q. *Are the fire squads in industries of any help to the city fire department in case of a fire at the plant?*

   A. When given elementary training they can begin fire-control operations pending arrival of city firemen. They can give city fire forces sound advice as to plant conditions from day to day, develop fire consciousness among fellow employees, and make more boosters for the fire department.

4. Q. *Describe the care of salvage covers.*

   A. Do not drag salvage covers unnecessarily. Do not throw them from upper portions of the fire building. Carefully wash and hang to dry as soon as possible after contamination. Patch any holes or weak spots. Fold in a standard manner.

5. Q. *Should the water department be notified of fire alarms in the average community?*

   A. All alarms of fire should be transmitted to the water department so that all equipment may be placed in service which might be necessary to meet the emergency incidental to a large fire. There are also many emergencies which arise at the scene of a large fire with which the water-works employees alone may be expected to cope, such as closing gate valves to eliminate leakage or consumption on large domestic connections, operating troublesome hydrants, isolating hydrants which have been broken or abandoned while in operation due to falling walls, etc.

6. Q. *What hydrant pressures for direct-hydrant hose streams are desirable in the following districts:*

   a. *Thinly built residential districts in which buildings do not exceed two stories*

   b. *Closely built residential districts in which not more than 10 buildings exceed three stories*

   c. *High value districts?*

   A. a. 50 pounds
   b. 60 pounds
   c. 75 pounds.

7. Q. *What is the minimum satisfactory pressure for fire purposes at the hydrant?*

   A. The minimum satisfactory pressure adequate for pumper suctions is 20 pounds at the hydrant.

8. Q. *What are some of the features that make a fire truck obsolete?*

   A. Main features that make a fire truck obsolete are: (a) inadequate braking power supplied by two-wheel brakes, (b) sluggish pick-up, (c) metal parts subject to "metal fatigue," (d) difficulty and excessive expense of securing repair parts. The morale of the entire department is better when they do not have to apologize for old "Thunderbolt." Do not buy a second-hand truck from another city as an economy measure.

9. Q. *How far should a fire engine in fair condition be able to lift water from suction?*

   A. At sea level a fire truck in fair condition should draft water 25 feet. One in excellent condition should lift water 28 feet.

10. Q. *Is it practical to set a speed limit for drivers in a volunteer department? If so, what is it?*

    A. The place to gain speed is in the evolutions of producing a satisfactory fire stream and NOT in driving fire apparatus excessively fast. Many departments place a limit of 35 miles per hour on city driving where travel distances are not too great. Volunteer departments making long runs into the country should not greatly exceed this figure.

11. Q. *What size batteries should be purchased as replacement?*

    A. Oversize batteries of extra capacity are a safeguard.

12. Q. *Can wetting agents be used in fog nozzles?*

    A. Water wetters, or surface-tension reducers, are effective when used with fog nozzles.

13. Q. *Will high-pressure fog streams ever replace solid streams for the general extinguishment of fires?*

    A. High-pressure fog streams are an important addition to the fireman's arsenal of fire-control equipment. They very definitely have a great deal of merit, as do all types of fog nozzles. Experience shows that the large majority of fires can be handled by booster equipment. But major fires require major control equipment, and since these are the fires that account for the large loss, apparatus must be on hand to control major fires.

14. Q. *Is the city liable for injuries to members of volunteer fire departments?*

    A. Volunteer firemen are protected under provisions of the Workmen's Compensation Act when serving under the authority of the chief or other persons in command of the fire department. (Iowa.)

15. Q. *How long can a fire department hold up a train by having a hose laid across the track?*

    A. Fire departments can hold up trains by stretching hose lines across the tracks as long as discretion dictates. Every effort should be made, however, to keep tracks clear by laying duplicate lines under the rails be-

tween the ties, or overhead, if possible.

16. Q. *Can cities collect millage taxes for fire protection, turn the money collected into the general fund, and then not use it to buy fire equipment?*

A. Fire levies are made under specific state laws for either equipment or salaries. In Iowa, for instance, there is only one way for these payments to reach the general fund—by transfer, approved and authorized by the Comptroller of the State of Iowa. Any other transfer would be illegal.

17. Q. *What is a "Sanborn Map"?*

A. A "Sanborn Map" is a detailed map of the property in a town. Listed thereon are all the factors that affect the probability of fire reaching major proportions.

18. Q. *What are the principal factors in keeping fire loss low?*

A. One principal factor is early discovery of fire. Most fires are small to start with. Education in proper methods of transmitting a fire alarm always pays dividends. Another factor is automatic fire-extinguishing systems that are designed to function without manual controls as soon as a fire gets started.

A Groundwater Supply "Bank Balance," And How It Should Be Calculated

UNDERGROUND water supply "economy" can be measured on an assets-and-liabilities basis to make it a dynamic going concern, just as any other enterprise should be. So argued John J. Baffa, New York City consulting engineer, before the annual meeting of the American Water Works Association held recently in Philadelphia.

On the assets side of the ledger, "cash on hand" is groundwater storage above a level that can be maintained by infiltration without impairing stream flows. "Accounts receivable" cover rainfall and snow melt that enter the ground, and are represented by a precipitation, less evaporation, transpiration, and runoffs. Other "accounts receivable" are both natural and artificial seepage from streams, lakes, reservoirs or recharge basins; and inflow from free or confined groundwater.

The "cash reserve" is the water in storage below the level of "cash on hand." Continued depletion of this "cash reserve" ultimately means failure of the supply system.

On the liability side of the ledger are development pumping, artificial drainage, seepage to streams and springs, evaporation, transpiration losses, and subsurface discharge of water.

To uncover the potentialities of any groundwater system, R. M. Leggette, consulting groundwater geologist, of New York City, urged use of the U. S. Geological Survey records. The underground geology shows the occurrence and extent of aquifiers, their dips, their permeability, and geologic history.

Dr. Carl A. Bays, geological and engineering consultant of Urbana, Ill., recommended supplementing this with geophysical methods which can be used to map physical differences between areas of water-bearing and non-water-bearing rocks. Depending upon the local geology, electrical measurements of resistivity, radio-activity measured with a Geiger counter, or other types of measurements can furnish information to aid water-supply prospecting. Geophysical logging methods in pre-existing holes, using electrical fields or gamma rays can be used in both exploration and maintenance and development problems. Seismic and electrical methods can both show the position of bedrock without drilling, and the electrical methods can be used to locate water-bearing sands and gravels, and the contacts that may exist between fresh water and salt or sea water.

PHOTO COURTESY OF CARL A. BAYS AND ASSOCIATES

This portable direct-reading electric logging instrument measures potential and resistivity in drill-holes. Especially designed for water wells, this handlogger is used to locate water-bearing formations, to test for corrosion and collapse defects in casing, and to aid repair and development of water wells in many areas of the United States and several foreign countries.

Test Drilling Recommended

To develop these groundwater resources, T. W. Thorpe of the Thorpe Well Company, Des Moines, Iowa, strongly recommended test drilling as the most economical method. To obtain representative samples, he suggested bailing or rotary tool drilling. Test drilling in rock provides cores for inspection. The work makes it possible to determine hydrostatic heads in different producing zones, which are of great importance in test drilling.

Cambridge Uses 65 Snow-Fighting Tools

Emergency Snow Division established, using 125 men to clear 143 miles of streets

A big FWD truck with underbody and forward plows clears streets near park.

By JOHN B. ATKINSON
City Manager
Cambridge, Mass.

SNOW-REMOVAL work in Cambridge is a function of the Snow Division in the Department of Public Works. The Division operates only during and after snow storms, with personnel being assigned to it from all other divisions in sufficient force to cope with the need.

The Division has the following amount and type of equipment available for use; it is owned and operated entirely by the city:

- 35 snow plows
- 4 sidewalk plows
- 4 Haiss snow loaders
- 2 bulldozers (17-ton Caterpillar)
- 2 wreckers for emergency use (These are also equipped with plow blades)
- 1 large Sno-Go (This piece of equipment loads fifty 15 to 20-yard trucks per hour)
- 3 Hough loaders
- 1 Austin-Western grader No. 90 (This sweeps traffic and safety islands throughout the city)
- 4 salt spreaders
- 2 large sand spreaders (12 feet long)
- 6 small sand spreaders (sometimes salt is used in these)
- 1 grader

The extent of the snow-removal program is widespread. We begin spreading rock salt on our most heavily traveled streets when 1 to 3 inches of snow have accumulated. For this we have eight cars of rock salt and 1,000 tons of sand on hand at all times.

If the storm is of great intensity, and the snow accumulates in measurable quantities, every street in the city is plowed, amounting to approximately 143 miles. While this is being accomplished, snow is being removed from principal squares, churches, schools, hospitals, municipal buildings, parks, and undertaking establishments. This work is carried on swiftly and efficiently as we are within a 10-minute run at the most from any section of the city to our snow-disposal dumps. In most cases we use city-owned land and have more than enough space to handle any size of storm. We have found that if snow begins to pile up in our streets during the working hours of the day, it is impossible to remove snow because of parked automobiles. However, after 5 p.m. the removal work is begun, and if cars should hinder removal operations or plowing, they are towed away to garages and the owner is notified of such. Before any such steps are taken, motorists are warned to get their automobiles off the streets.

As mentioned previously, the snow crews are taken from workers in our Public Works Department. As the coming of a storm is known hours ahead, we have ample opportunity to alert our mechanics to attach the plow blades to trucks, and also the operators of this equipment. Because of the efficiency of our equipment, a crew of not more than 125 men is needed to combat a storm of 5 to 8 inches of snow.

If the Department were to receive notification at 3 p.m., for example, that a storm was due in the vicinity in six or seven hours, an assignment of men to fight the storm would immediately be made and these men would thereupon be sent home to rest. This crew would report back at the Department at about 9 or 10 p.m. and be assigned to equipment that would be ready for operation immediately.

An Austin-Western grader goes to work on a heavy fall of snow around a traffic island at one of the city's intersections.

Birmingham Dedicates New City Hall

AN IMPRESSIVE city hall, which will be paid for in full by the date of its occupancy, was dedicated in Birmingham, Ala., on August 3. The total cost of the new building, approximately $3,850,000, was financed largely through tobacco tax revenue, the sale of bonds purchased during World War II, and city general founds. A photo of the building appears on the front cover of this issue.

The new building faces the Jefferson County Court House, across Woodrow Wilson Park, and is in the center of Birmingham's proposed civic center. The building contains a sub-basement, basement, ground floor, nine numbered floors, and a two-story pent-house for machinery and equipment. Extra-strong foundations and structural steel will permit future additional stories if a need arises for expansion. Charles H. McCauley is the architect.

A huge 22-cubic-foot Memorial Centerstone box was lifted into place during the dedication ceremonies. Its contents are designed to give citizens of the year 2050 a keen insight into mid-Twentieth Century life in Birmingham. Among the varied contents are letters from public school classes and leading citizens, statistical data and surveys, radio transcriptions, copies of historic editions of newspapers, art exhibits, etc. The box itself, carefully sealed, was made and donated by workmen of the American Cast Iron Pipe Company, and its contents were assembled by the Birmingham Historical Society.

The air-conditioned building will house an Art Museum and the Board of Education, in addition to all regular city officials and departments. A special one-week "open house" will be staged some time in October celebrating the structure's completion after all departments have moved in.

"Cities Are What Men Make Them"

A two-story Council Chamber will extend from the second through the third floor. The special City Hall Section of *The Birmingham News*, published on August 2, reported the following story about the Chamber:

"For months the architects had been wondering what inscription should be put above the entrance to this room. They wanted something short but punchy, something that would make men think. While talking it over with Mayor Cooper Green one day, the architects noticed a poem under his desk. All they read was the title—'Cities Are What Men Make Them.' They had their answer.

"The full poem, whose authorship is unknown, was published in THE AMERICAN CITY a number of years ago." *

In delivering the dedication address for the new city hall, Pittburgh's Mayor David L. Lawrence, who is also president of the U. S. Conference of Mayors, said, "Structures like these—the seat of local self-government—are America's real Statues of Liberty!"

Among the honored guests at the ceremonies were Paul V. Betters, Executive Director, U. S. Conference of Mayors; Ed E. Reid, Executive Director, Alabama League of Municipalities, and James E. Folsom, Governor of the State of Alabama.

* The text of the poem follows:

Cities are what men make them,
Whatever those cities may be:
Slothful, slowen, sleepy;
Progressive, beautiful, free.

If the hearts of the builders are noble,
At one with the day and the deed,
They'll grow into greatness and grandeur;
For thus it was ever decreed

That cities are what men make them,
Wherever those cities may be:
Set out on the desolate desert
Or down by the surging sea.

Though they cleave to the breasts of mountains
Or nestle by rivers broad,
Cities are what men make them
On land that is given of God.

How Largest Cities Compare in Population

The list of 106 cities below, as furnished through the courtesy of Howard G. Brunsman, Chief, Population Division, Bureau of the Census, is a preliminary one, based on announcements made by local Census District Supervisors. The final 1950 figures may differ from the preliminary counts because of the allocation of residents who were enumerated elsewhere and because of other revisions. The cities are listed in descending order of size based on the unverified 1950 figures but the Census Bureau observes that many of the rankings below the first 25 are likely to change when the final totals are announced.

City	*1950 Population*	*1940 Population*
New York, N. Y.	7,851,610	7,454,995
Chicago, Ill.	3,643,917	3,396,808
Philadelphia, Pa.	2,057,210	1,931,334
Los Angeles, Calif.	1,934,036	1,504,277
Detroit, Mich.	1,837,613	1,623,452
Baltimore, Md.	939,855	859,100
Cleveland, Ohio	909,546	878,336
St. Louis, Mo.	852,523	816,048
Washington, D. C.	792,234	663,091
Boston, Mass.	788,552	770,816
San Francisco, Calif.	760,381	634,536
Pittsburgh, Pa.	673,756	671,659
Milwaukee, Wis.	632,938	587,472
Houston, Texas	593,600	384,514
Buffalo, N. Y.	576,506	575,901
New Orleans, La.	568,407	494,537
Minneapolis, Minn.	517,410	492,370
Cincinnati, Ohio	499,744	455,610
Seattle, Wash.	462,981	368,302
Kansas City, Mo.	453,290	399,178
Newark, N. J.	437,833	429,760
Dallas, Texas	432,805	294,734
Indianapolis, Ind.	424,683	396,972
Denver, Colo.	412,823	322,412
San Antonio, Texas	405,973	253,854
Memphis, Tenn.	394,025	292,942
Oakland, Calif.	378,322	302,163
Columbus, Ohio	373,821	306,087
Louisville, Ky.	371,859	319,077
Portland, Ore.	371,009	305,394
Rochester, N. Y.	331,292	324,976
Atlanta, Ga.	326,962	302,288
San Diego, Calif.	321,485	203,341
St. Paul, Minn.	310,155	287,736
Toledo, Ohio	301,372	282,349
Jersey City, N. J.	300,447	301,173
Birmingham, Ala.	298,747	267,583
Fort Worth, Texas	277,949	177,662
Akron, Ohio	273,189	244,791
Providence, R. I.	254,027	253,504
Omaha, Nebr.	247,397	223,844
Miami, Fla.	247,262	172,172
Long Beach, Calif.	243,921	164,271
Dayton, Ohio	243,108	210,718
Oklahoma City, Okla.	242,450	204,424
Richmond, Va.	229,897	193,042
Syracuse, N. Y.	220,067	205,967
Worcester, Mass.	201,875	193,694
Jacksonville, Fla.	198,880	173,065
Norfolk, Va.	182,377	144,332
Salt Lake City, Utah	181,902	149,934
Tulsa, Okla.	180,586	142,157
Des Moines, Iowa	176,954	159,819
Hartford, Conn.	176,623	166,267
Grand Rapids, Mich.	175,657	164,292
Nashville, Tenn.	173,359	167,402
Youngstown, Ohio	167,643	167,720
Wichita, Kans.	165,374	114,966
New Haven, Conn.	164,206	160,605
Springfield, Mass.	162,601	149,554
Flint, Mich.	162,193	151,543
Spokane, Wash.	160,473	122,001
Bridgeport, Conn.	158,678	147,121
Yonkers, N. Y.	152,533	142,598
Tacoma, Wash.	142,975	109,408
Paterson, N. J.	139,523	139,656
Sacramento, Calif.	135,862	105,958
Albany, N. Y.	134,382	130,577
Charlotte, N. C.	133,212	100,899
Fort Wayne, Ind.	132,831	118,410
Gary, Ind.	132,461	111,719
Austin, Texas	131,964	87,930
Chattanooga, Tenn.	130,333	128,163
Erie, Pa.	130,125	116,955
El Paso, Texas	130,033	96,810
Kansas City, Kans.	129,583	121,458
Trenton, N. J.	127,894	124,697
Mobile, Ala.	127,129	78,720
Shreveport, La.	125,506	98,167
Scranton, Pa.	124,747	140,404
Camden, N. J.	124,474	117,536
Knoxville, Tenn.	124,117	111,580
Tampa, Fla.	124,073	108,391
Baton Rouge, La.	123,954	34,719
Cambridge, Mass.	123,700	110,879
Savannah, Ga.	119,109	95,996
Canton, Ohio	116,312	108,401
South Bend, Ind.	115,402	101,268
Elizabeth, N. J.	112,675	109,912
Berkeley, Calif.	112,125	85,547
Fall River, Mass.	112,091	115,428
Peoria, Ill.	111,475	105,087
Wilmington, Del.	109,907	112,504
Evansville, Ind.	109,887	97,062
New Bedford, Mass.	109,033	110,341
Reading, Pa.	108,929	110,568
Corpus Christi, Texas	108,051	57,301
Allentown, Pa.	106,254	96,904
Montgomery, Ala.	105,715	78,084
Phoenix, Arizona	105,003	65,414
Waterbury, Conn.	104,209	99,314
Duluth, Minn.	104,060	101,065
Pasadena, Calif.	103,971	81,864
Somerville, Mass.	102,254	102,177
Utica, N. Y.	101,479	100,518
Little Rock, Ark.	101,387	88,039

New President of British Town Planning Institute

ELECTED president of the Town Planning Institute in Great Britain for 1950-51, at a meeting of the Institute held in June, was Lieut.-Col. H. P. Cart de Lafontaine, O.B.E., T.D., M.T.P.I., F.R.I.B.A. He will take office in November.

The Municipal Bond Market

The Korean War's Effect on Financing of Local Projects in U. S.

By CATHERINE CLARK
Municipal Service Department
Dun and Bradstreet, Inc.

THE Korean war has set in motion forces which have already influenced the course of the municipal bond market and will continue to influence it for some time to come. "Influence," however, is a neutral word which does not yield much useful information to municipal officials who have the responsibility of deciding whether and when to sell bonds. This column has no desire to assume the role of oracle—the record of forecasters is not one of such unparalleled success that it tempts the prudent to enter their ranks—but a look at what has happened to the market in the last several weeks and during similar periods of international tension in the past may be helpful.

The news of the North Korean crossing of the 38th Parallel broke on June 25, a Sunday. Upon this news, municipal bond prices, which had been following a slowly upward trend (that is, bond yields had been declining), tripped—tumbled would be too strong a word, for the fall was soon broken. On July 19 the President, in his message to Congress, asked for new credit controls to ward off inflationary pressure, and suggested that recommendations for increased taxes would soon be forthcoming. At about the same time he cut down on the amount of mortgage credit available through the FHA, from $1,250,000,000 to $650,000,000, and requested that public housing construction commencements be limited to not more than 30,000 dwelling units in the last six months of 1950. These recommendations, which put into definite form what has been generally expected, proved the turning point for municipal bond prices, which began moving upward. By mid-August they had risen above pre-Korean war level.

Interest Yields Have Lowered

These two phases of the market's reaction to the war are illustrated by the trend of the *Bond Buyer's* index of the yield in 20 municipal bonds. Yields, of course, are perfectly correlated, negatively, with prices for a given interest rate and maturity. That is, the higher the price for a given bond, the smaller the rate of return. In the first phase of the market's reaction, the *Bond Buyer's* index rose from 1.99% to 2.06%, a swing of only .07%. During the second phase, which at this writing is still going on, the index fell from 2.06% to 1.83%, or .23%.

Bond Buyer's *Index of Yield on 20 Municipal Bonds*

June 22—1.99%	July 20—2.05%
June 29—2.00%	July 27—1.91%
July 6—2.02%	Aug. 3—1.85%
July 13—2.06%	Aug. 10—1.83%

The above table brings out clearly that the net effect of the war—or more precisely, of the measures which are being forced on us by the war—has been to strengthen the municipal market.

What are the factors that account for this rising market? The probability of increased income taxes is an important one, for the higher income taxes go, the more value the tax-exempt features of municipal bonds has. Another is the possibility of reduced municipal borrowing, which would increase the desirability of bonds already outstanding. The reduction in municipal borrowing may come both directly and indirectly—directly through limitation of federal aid for housing bonds, indirectly through rationing of steel and other materials. Still another factor is the Federal Government's interest in maintaining low interest rates. Since municipal bond yields, to a considerable extent, follow the trend of government bonds, measures in support of government bonds would tend to keep municipal prices up.

Securities Markets Sensitive

Nevertheless, in the first phase of the market's reaction to the war, bond prices fell, though the decline was wiped out by subsequent gains. Market reaction seems to need further exploring. Securities markets are, of course, extraordinarily sensitive and, being sensitive, (1) are subject to unreasoning jitters, and (2) discount events far in advance of their actual happening. In the light of hind-sight, the slump that followed hard on the announcement of the war seems to be clearly due to "scare" selling, for all of the factors we have listed as being instrumental in the later rise were present during the declining market. True, they had not been given the sanction of official recommendations at that time, but certainly World War II was still fresh enough in everyone's mind that the prospects could be clearly seen.

The subsequent rise was just as clearly an example of the second statement—that the market discounts events in advance of their actual happening. We do not at this writing have higher income taxes, although Congress is considering them; there has as yet been no rationing of materials which would cut off all but the most "essential" construction projects; the Federal Government has as yet made no move toward extraordinary borrowing. All this, of course, leads immediately to a question which we will defer for the moment—if the market has already discounted these factors, how will it react when increased taxes, controls, etc., actually go into effect?

Before we grapple with this most important question, let us take a look at how the market reacted during World War II. From July 1 to October 1, 1939, the period immediately preceding and following the declaration of hostilities, the *Bond Buyer's* index of the yield on 20 municipal bonds rose from 2.66% to 3.30%—a swing of .64%. From May 1 to June 1, 1940, during the fall of France, the change was .41%, from 2.59% to 3.00%. And from December 1, 1941, to March 1, 1942, a period that requires no identification, the swing was .58%, from 1.93% to 2.51%. What happened to interest rates after March 1942 is also pertinent. From then until the close of the war interest rates followed a steadily declining trend, with the *Bond Buyer's* index reaching 1.35% just prior to the war's end in 1945.

What Market Will Do Now

The time has come to tie together these diffusive observations, in the interest of arriving at at least a tentative answer to the question: What will the market do now?

The market's immediate reaction to the shock of war, both in World War II and in the present situation, was one of weakness. Almost all the measures which war requires for its successful prosecution, however, are such as to enhance the desirability of municipal bonds, either through reducing the supply of them, or through increasing the value of the tax-exempt features. Over the long term of World War II, these factors resulted in a rising market, and there are indications the same will be true during the Korean war.

There is a qualification to this, however. Without making any comparisons between the events of World War II and of the Korean war, it is apparent that the recent .07% increase in the *Bond Buyer's* index, during the declining phase of the market, was as nothing compared with the increases in yields during the early phases of World War II. In other words, the remembered lessons of World War II curtailed the downward swing of the market. The corollary to this is that the factors which make for a rising market have already been partially discounted. If no further controls are imposed on the economy than those which have actually been recommended by the President to Congress, any further rise in the market is likely to be very gradual. If, however, all the controls of World War II are reimposed—and what is more important, fully exercised—a much sharper rise would probably result.

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JOSLYN MFG. AND SUPPLY CO.

Complete Pole Line Equipment

20 NORTH WACKER DRIVE, CHICAGO 6, ILL.

New Jersey's First Mercury-Vapor White Way

By JOHN C. GITTONE
Mayor
Vineland, N. J.

THE Borough of Vineland recently became the first community in New Jersey to light an entire business district with mercury-vapor lamps. Originally, 96 General Electric 16,000-lumen units were installed along Landis Avenue, our main business street. When these lights were turned on December 16, we were so pleased with the results that we immediately ordered another 54 units to be installed along the same street.

The lamps are burned in a horizontal position, and have magnetic field over the arc of the lamp to keep the arc centered inside the tube. Mounted on new Union Metal tubular steel standards at a height of 27½ feet with 8-foot upsweep brackets, the lights are erected every 75 feet on both sides of the street.

The new lamps now light the entire roadway to an average of five footcandles of calculated illumination. This light level is 10 to 12 times greater than that obtained with the old, low-mounted upright lights, and, we believe, makes Vineland's lighting comparable with that of any other city of the same size.

In 1923, when the incandescent lights were installed, they were among the latest in electrical street lighting. Over the years, however, these lights became obsolete and less efficient in the face of ever-increasing traffic volume along the avenue.

Under direction of Howard M. Down, General Manager of Municipal Utilities, and Max Luertzing, Superintendent of Distribution, plans for some form of new street lighting along Landis Avenue had been under development since 1938. Delayed for several years by the war, a comprehensive survey was made in 1945, followed by a test period in 1948. During this period, both incandescent and mercury-vapor lamps of several different types were tested. Small sample installations were put up for public showing, and the final decision to use mercury was made. The initial installation of the 96 modern units placed the lights every 150 feet on both sides of the street, but so alternated as to present a light on one side every 75 feet. The additional 54 units provide a light every 75 feet on both sides, but placed opposite each other.

The manner in which the new system was installed is also noteworthy. With a crew of 15 men under the direction of the superintendent of distribution, the Vineland Electric Department completed the entire installation in eight working days. The equipment arrived on a Thursday and the actual setting up of all the poles and the preliminary wiring for the entire job was completed by Sunday morning. On the following Friday evening the lights were turned on at a public ceremony.

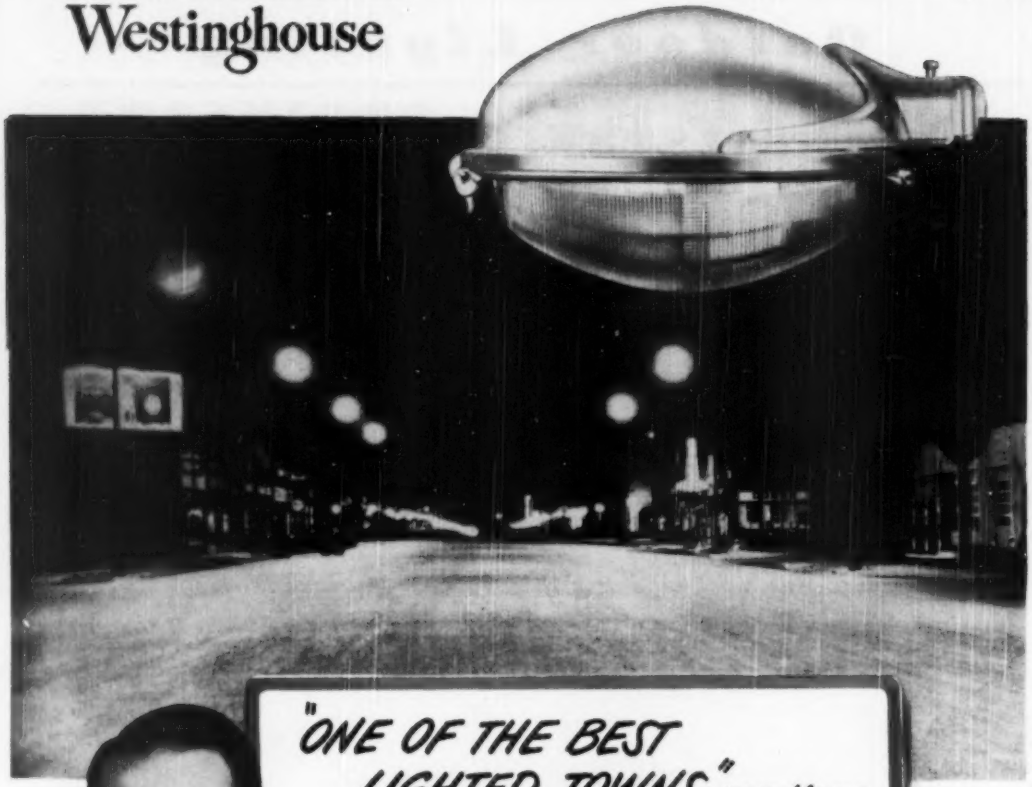
At present, all wiring is overhead, but the bases were installed with cable entrances, and when the laying of the conduit is completed, we intend to transfer all wiring underground.

The lights are controlled by four photoelectric relays located at points along the avenue. They turn the lighting system on and shut it off at predetermined daylight levels.

New lights make Vineland, N. J., look just about the same by night as by day.

YOU CAN BE **SURE**.. IF IT'S

Westinghouse



"ONE OF THE BEST LIGHTED TOWNS" says Mayor

"We have considered our town one of the best lighted in the Rocky Mountain area," says Mayor Price Hopkins of Greeley, Colorado. *"It is my understanding that the first major installation of the OV-20 mercury-vapor type of lighting was made in Greeley."*

In a recent letter to the Home Gas and Electric Company he further states, *"It has been in use now about two years and has been completely satisfactory."*

Further proof of their satisfaction comes in his final statement, *"It is with these thoughts in mind we have authorized your company to make the additions which were recently requested."*

This could be your town. Want proof?

Don't take our word for it. Ask Mayor Hopkins. Better yet, go see the town of Greeley.

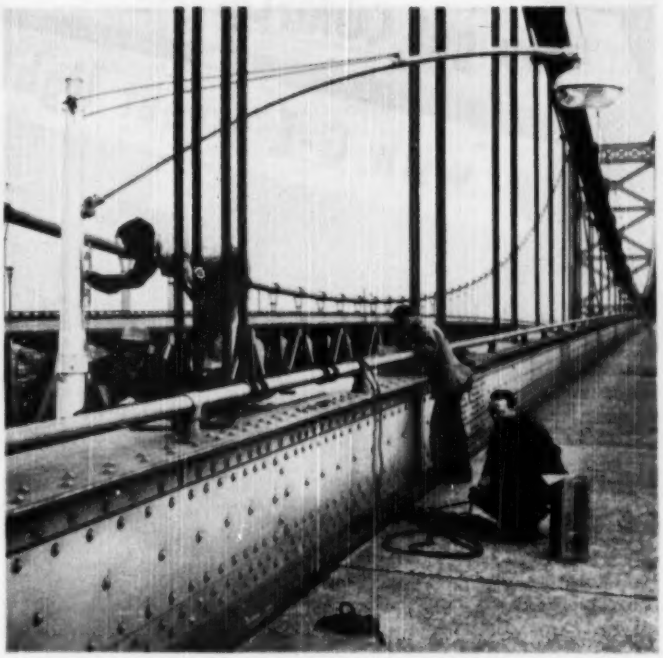
Seeing for yourself is real proof. J-04276-A

There's Danger in Darkness . . . but Safety in Light

Westinghouse
PLANNED LIGHTING SYSTEMS

Aluminum Alloy Street-Lighting Standards

By JOHN L. EBERLY
Engineer, Sales Development Division
Aluminum Company of America
Pittsburgh, Pa.



Maintenance position of rotating-type pole on Delaware River Bridge.

ONE of the first sizeable installations of aluminum standards was made early in 1946 by the Electrical Division of the Chicago Park District. Since then, numerous other cities and states have included aluminum standards; 1,800, specified by the City of Pittsburgh, Pa., will be installed this year. Today there are 11,000 aluminum lighting standards either in use or scheduled for installation in such places as New York City; Levittown, Long Island; Champaign, Ill.; and Los Angeles, Calif.

Aluminum bracket arms, ordinarily mounted on utility poles, also fit into modern street-lighting programs, and it is estimated that more than 47,000 of them are now in use or scheduled for installation in the United States.

Many engineers agree that the inside surface of a steel mast presents a most serious corrosion problem because it cannot be economically maintained. Since an aluminum mast does not have to be painted on the inside or the outside, this maintenance problem is eliminated.

Engineers may raise a question regarding the appearance of aluminum standards after exposure to the atmosphere. In time, an aluminum surface normally acquires a soft gray appearance. Many architects prize these gray tones.

Another economy is lower erection cost, made possible by the light weight of aluminum. For example, a 25-foot steel standard, including transformer base and an eight-foot bracket arm, weighs approximately 430 pounds; a similar pole in aluminum weighs 175 pounds; a comparable concrete pole would weigh 1,000 pounds. Eight-foot aluminum bracket arms weighing 13 to 15 pounds are approximately one-third the weight of comparable steel brackets.

Aluminum poles on the Delaware River Bridge, which connects Philadelphia, Pa., and Camden, N. J., are an excellent example of this lightweight advantage. This bridge is so constructed that the roadway and mounting level of the lighting standards have different grades; consequently, the standards vary in height as the crown of the bridge is approached. This difference in grade made it necessary to mount many of the standards as high as 20 feet above the roadway level.

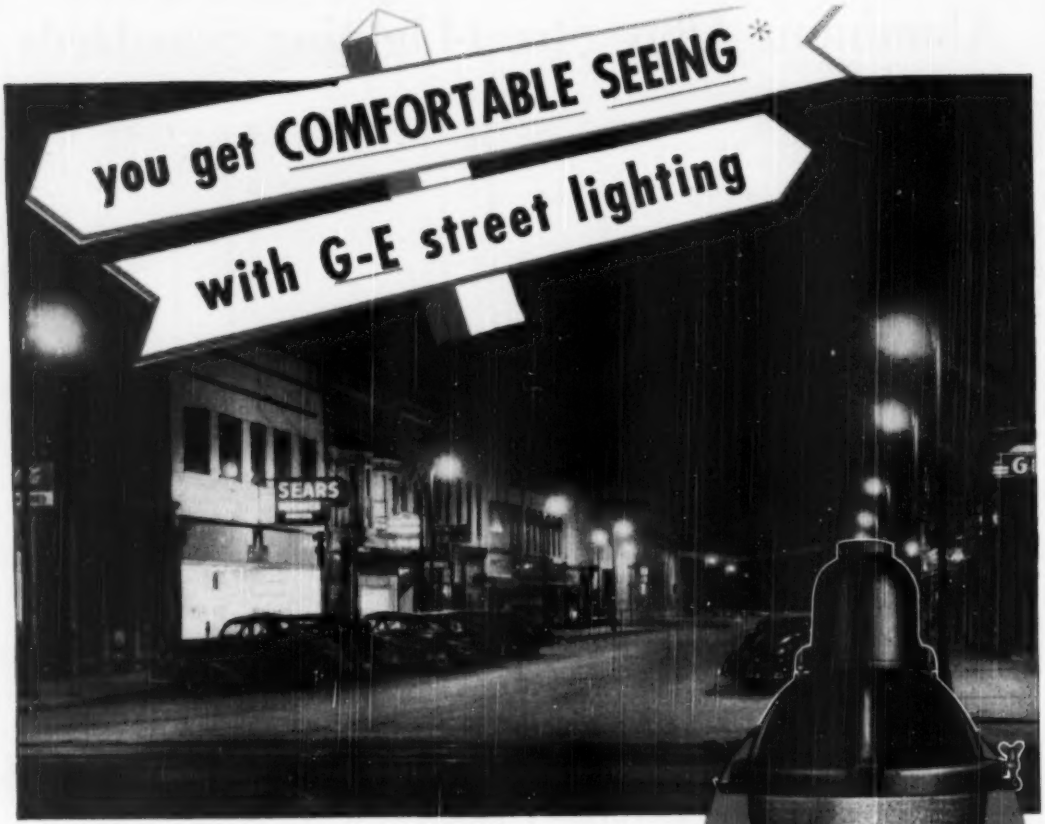
A 30-foot octaflute pole with an 8-foot bracket arm.

An unusual feature of this installation is the use of aluminum bracket arms that can be turned 110 degrees about the axis of the mast. This is done by pivoting the entire mast and bracket arm assembly with a spanner wrench applied to the bottom of the mast. This turning action permits the luminaires to be maintained from the sidewalk without blocking motor traffic.

Although assembly techniques for aluminum standards present no unusual problems, there are a few practices which, if followed, will result in better service. Steel anchor bolts used with aluminum should be hot-dip galvanized or of stainless steel. Cap screws and small nuts and bolts used to attach bolt covers, top ornaments of finials, bracket arms, and luminaires should be made from aluminum, stainless steel, or galvanized steel. Ordinary uncoated steel bolts and nuts in direct contact with aluminum present a potential galvanic corrosion hazard and lead to unsightly rust streaks.

Aluminum surfaces that are likely to trap moisture should be caulked with

you get COMFORTABLE SEEING* with G-E street lighting



*Comfortable Seeing—the light you need, exactly where you need it, economically

Here's Seymour, Indiana, another town that has switched from dangerous darkness to leadership in light. City officials realized the inadequacy of their 20 year old lighting system, and that proper lighting would be a business attraction. With the help of their local utility, Seymour decided on a General Electric Comfortable Seeing installation for their business and residential areas.

Now the business streets are flooded with soft, eye-easing light—brightening the store fronts for shoppers—uniformly illuminating the street for the safety of both pedestrians and drivers.

The light on Seymour's residential streets is being more than doubled as old-style radial-wave reflectors are replaced by modern Suburban Reflectors. Photo-electric cells in the modern control circuit automatically turn lights on when they are needed.

TRADE FOLLOWS THE LIGHT

Business streets should be lighted in a manner which favorably influences and attracts night-time shoppers. Lighting and background are often just as important in motivating sales as the merchandise itself. This has long been recognized in connection with show windows and store interiors, but only in recent years are the psychological possibilities of exterior illumination being realized.

Plan on Comfortable Seeing when relighting your town. General Electric has the luminaire which will exactly meet the needs of your business districts, and residential areas. The lighting specialist in the nearest G-E Apparatus Department Sales Office can give you all the details. *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*

This is the Form 79AS an effective luminaire for main street lighting

It's a large-size ornamental unit with a circular light distribution (I.E.S. Type V). Has an Alzak† processed aluminum reflector, light-diffusing rippled globe, die-cast aluminum casing and hinged globe holder. Burns 4000 to 15,000-lumen series lamps, 300- to 860-watt multiple lamps.

†Manufactured under patents of the Aluminum Corporation of America.

GENERAL ELECTRIC

a suitable compound, a number of which are available on the market. It is also good practice to insulate an aluminum base from either steel or concrete with a liberal coating of bituminous paint or some other insulating material. Most of these precautions are normally handled by the manufacturer, so they do not impose added expense on the pole customer.

Specification Hints for Fabrication

Sheet of aluminum alloys 3S, 4S, or 52S and tubular extrusions of aluminum alloys 61S and 63S are commonly used for the mast, which can be of the octaflute, tapered round, octagonal, or stepped design. Alloy 61S or 63S extruded sections and pipe are recommended for the bracket arms. Many arms are of the cantilever design and adequate strength can be obtained with these alloys.

The strength of the pole is dependent on the attachment of the mast to the base flange. In general, either welding or press-fitting techniques are used in joining the mast to the base flange. In the first method, the mast is slipped into a cast base and the joint is completed with two circumferential welds. The mast can also be butt-welded to a forged base flange. The inert-gas shielded arc-welding process is recommended because it holds welding heat to a minimum and eliminates the necessity of using a flux. Casting alloys 43 and 356-T71 or forging alloy 61S-T6 are commonly used for the welded-type joint.

The pole can also be pressed into a cast base using a 0.025-inch to 0.050-inch interference with the aid of a suitable lubricant. Casting alloy 356-T4 has been used almost exclusively for this type of base flange, since it possesses adequate elongation for the pressing operation. Excellent results can also be obtained by a combination of press fitting and welding.

Transformer bases also are being made from aluminum casting alloys 356 and 43. An aluminum base weighs 35 pounds, a cast-iron base 150 pounds.

It is possible to use the "as fabricated" finish for aluminum poles if the manufacturing process does not mark the sheet or tubing surface too badly; however, a scratch finish or peeled surface presents a more uniform appearance and is popular. Other methods, such as a chemical dip, can also be used to obtain this effect. A wax sealer following the scratch finish is good practice but not mandatory.

The "Dark" Equipment of Street Lighting

By E. B. KARNS
Manager, Street Lighting
Westinghouse Electric Corporation
Cleveland, Ohio

STREET-lighting systems generally consist of either series or multiple circuits, or a combination of both types. In this discussion an attempt will be made to point out the distinguishing characteristics of each, and some of the factors which influence engineers in selecting either one or the other for a new installation.

Fundamental Requirement Is Constant Current

In a typical series system, the resistance of all the lamps combined with the cable and reactance equals the total impedance of the circuit, and consequently the supply voltage must be relatively high to force rated current through the network. Another fundamental requirement is that the current in the circuit be constant at all times, so that rated lumen output is obtained from all lamps regardless of individual lamp outages or failures. This means that the voltage supply must also be variable and dependent on the number of lamps in the circuit, and to do this a type of transformer known as a constant-current regulator is introduced.

One of the disadvantages of constant-current regulators, and consequently series systems in general, is that unless properly protected, an open circuit on the secondary causes secondary voltage to rise and become a potential hazard to both repair crews and, in the case of fallen overhead cable or exposed cable, to passers-by. Fortunately, however, a protective relay is available which automatically de-energizes the primary remote-control oil switch operating coils, thus disconnecting the primary to the constant-current regulator switch.

Constant-current regulators may be classified into two basic types: the moving coil and the static. The moving coil is the most widely used and the most advantageous. It is simply a transformer in which the primary and secondary coils are so arranged that their position with respect to each other are movable. This means that the leakage flux between the coils is variable, dependent upon position (the position for any particular load is a balance between electrical forces and gravitational forces). Variable leakage flux results in variable secondary voltage, the condition required for a constant-current system.

In Multiple Lighting All Lamps Are in Parallel

In a typical multiple street-lighting system all lamps are in parallel. The essential elements are a remote-control oil switch, just as used in the series system; a standard distribution transformer, instead of a constant-current regulator; and a method of control.

Where secondary capacity is already available, the distribution transformer and oil switch are eliminated, thus only a low-voltage multiple relay is needed.

The high-voltage problem which is inherent in series circuits is, of course, non-existent in the multiple system, and so no protective relay is required. The advantages of both types are summed up briefly below.

Advantages of Series Circuits:

1. Better control of light due to smaller light source in series incandescent lamps.
2. Light output of series incandescent lamps more uniform throughout life of lamp than that from multiple lamps.
3. Outage on single phase, 3-wire, distribution system in any locality would not affect series street-lighting since it is a separate system.
4. Series circuit control equipment, less complicated than corresponding multiple equipment, and series circuits more adaptable to simple methods of control.

Advantages of Multiple Circuits:

1. No high-voltage problem as exists in series circuit.
2. No special-type distribution equipment such as constant-current regulators and PC relays are required.
3. Greater flexibility of system as street-lighting circuits can be interconnected with power distribution network.
4. No film cutouts required at individual lamps.
5. Faults can be easily located.
6. No power-factor correction equipment needed in most cases.
7. Uses smaller transformer and provides more satisfactory service for mercury lighting than does the series system.
8. Greater simplicity of overhead systems with fewer wires on cross arm.
9. No telephone interference.

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HUNTINGDON, PENNA.

Traffic Control and Facilitation

How Designated Truck Routes in 25 Cities Helped in Making Buffalo's Plan

By H. DALE BOSSERT
Planning Director
Buffalo City Planning Commission
and
HENRY W. OSBORNE
Traffic Engineer
Buffalo Board of Safety

THE establishment of official truck routes within the City of Buffalo has been considered for several years. Recently, the question received increased attention as the result of a petition to have a certain street designated a parkway. The sponsors were seeking to protect their neighborhood from the invasion of heavy commercial vehicles having neither origin nor destination within the residential area. The same problem exists in many neighborhoods, but a prospective assessment for repaving made this group especially sensitive.

The petition was referred to the City Planning Commission and to the Board of Safety, which has authority to enact traffic ordinances. It was apparent that the proposed "parkway" lacked the right-of-way width and character of landscape to justify such designation. However, a study of the larger question of truck routes was undertaken by the staffs of these two city departments. Representatives of truck owners and operators were consulted, as well as property owners and members of the Common Council.

Experience in 25 Big Cities

Questionnaires sent to 25 cities with populations of 100,000 and up revealed that three cities permit all vehicles to use all streets, five cities restrict gross weights to 10-33 tons and lengths to 35-45 feet, six cities prohibit all commercial vehicles from certain streets, 17 cities restrict "parkways" or "boulevards" from truck traffic, and 13 cities include other designated streets in the restrictions. Fourteen cities reported either official or unofficial truck-route plans. Of 9 cities which had adopted official truck routes, local truck movements were affected in only 6 cities.

In Washington and South Bend, through or intercity trucks are restricted to designated routes. Kansas City, Mo., specifies in the individual permits for such vehicles what routes may be used. Trucks are prohibited in the central business district in Los Angeles and Kansas City during specified hours.

There is growing awareness that something must be done to expedite commercial traffic and at the same time protect neighborhoods in which it has no purpose. The long-range job requires new expressways and arterials. Meanwhile, best use is being made of existing facilities in many cities by the designation of truck routes, which help both commercial and non-commercial traffic by separating the two essentially different classes. Another accomplishment is relief to residential districts by prohibiting trucks from far more than the traditional category of parkways and boulevards (which often need less "protection" than ordinary residential streets because their width and planning actually insulate the adjacent dwellings to some extent).

Supported by the findings of the joint survey, the City Planning Commission and Board of Safety prepared a truck-route plan for the City of Buffalo. About one-fourth of the total street mileage (including every street in certain industrial and commercial areas) is available to trucks of all types allowed by the laws of New York State. The Board of Safety is enacting traffic ordinances to put the plan into effect as fas as the schedule of posting permits. (Traffic regulations are not enforceable until signs are posted.)

A truck-route system is no substitute for a modern traffic-way system. It is a supplement, however, which has added importance as an interim protector of both traffic efficiency and residential values.

Rooftop Parking

FOURTEEN stores and business establishments offer parking for 90 cars on the roof of the Shaker Moreland Company, near Shaker Square in Cleveland, Ohio. No fee is charged, and an effort is made to limit parking to two hours. The space is reached by a ramp, and two stairways lead down to the stores which are one story in height.

Another area in the rear of the stores accommodates 150 cars. The roof space is three-quarters occupied on an average day.

The roof-parking area was constructed by the Cuyahoga Asphalt and Paving Company, Cleveland. It consists of 3 to 5 inches of Texaco asphaltic concrete. The accompanying photograph was supplied by J. J. Smith, The Texas Company, 135 East 42nd St., New York 17.

Rooftop parking provides space for 90 customers' cars in Cleveland, Ohio.

City Officials and Transit Management agree:

Electrics are good for Cleveland

I am pleased by the wonderful reception modern electric vehicles have been given by the transit riders in our city. They are helping us relieve traffic congestion and its many resulting evils.

Thomas A. Burke,
Mayor

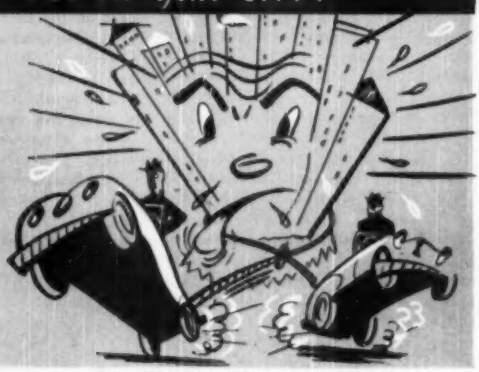
Modern electric vehicles are planned as the backbone of our system. Their large capacity, low maintenance costs and rider popularity make them ideal vehicles for our use.

Donald C. Hyde,
General Manager
Cleveland Transit System

Modern electrics — trolley coaches, modern street cars, modern rapid transit — correctly applied, can do a great job for your city, too.

ARE THESE CONDITIONS TRUE IN *Your* CITY?

Your best stores are suffering from too many cars, too few customers?



Automobile traffic is choking your city to death?

Effective mass transportation should help today's cities solve the major problem of traffic congestion, and resulting blight conditions. Our engineers will be glad to assist you with your planning problems. Write Apparatus Dept., General Electric Co., Schenectady 5, N. Y.

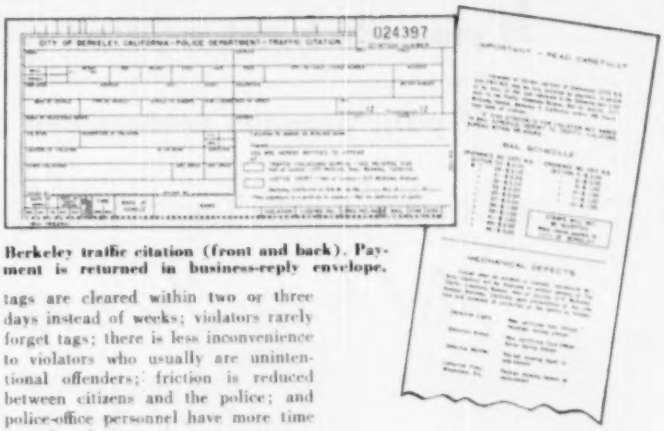
GENERAL ELECTRIC

Handling Traffic Tags by Mail Reduces Friction

FOLLOWING the installation of 875 Miller Duncan parking meters, the Berkeley Police Department of Berkeley, Calif., instituted a system whereby certain traffic offenses could be disposed of by mail. The purpose was to expedite the processing of overtime parking tags. A special postage-prepaid, addressed envelope was left on the windshield with each tag.

This method was so successful that it was quickly expanded to include nearly all types of parking offenses. Now in use for nearly three years, it is a permanent part of the Berkeley traffic-control plan.

Approximately 200 parking tags are issued daily, with 70% being cleared by mail. Errors on the part of the violators, such as sending an incorrect fine or failing to include their copy of the tag, thus requiring police correspondence, amount to less than 1/10th of 1% of the tags issued. The advantages are:



Berkeley traffic citation (front and back). Payment is returned in business-reply envelope.

tags are cleared within two or three days instead of weeks; violators rarely forget tags; there is less inconvenience to violators who usually are unintentional offenders; friction is reduced between citizens and the police; and police-office personnel have more time for other duties.

There are few activities which place a greater strain upon police public relations than those involving the arrest and disposition of traffic-law offenders. There is the annoyance and mental upset felt by the motorist on receiving a tag, predicated in many instances on a firm conviction that the tag is unnecessary or unjust. This may be aggravated by an argument with the traffic officer. There is the inconvenience of driving to the police station and friction at the traffic counter. These factors create a tension between the police and the public that is serious in even the smallest cities. Disposition of tags by mail offers an easy, practical, and relatively inexpensive method for minimizing the dilemma.

J. D. HOLSTROM
Chief of Police
Berkeley, Calif.

Better Signs in Berkeley, Calif.

Black-on-white (above left) replaces black-on-yellow (above right); the legends are larger and much clearer.

"BILLBOARD publicity" on street improvements under way is given in Berkeley, Calif., by large road signs designed by Richard Gallagher, Director of Public Works. The black-and-white signs are 4 by 6 feet and are posted one at each end of a street being improved.

Black-and-white street-name signs, designed by Mr. Gallagher and Assistant Traffic Engineer W. H. Blair, have been installed along seven major streets. The letters and numbers are larger than the usual, and are rounded for readability. The omission of a border around the sign gives a cleaner appearance and permits the larger letters and numbers. These name signs—307 in the first batch installed—replace the existing black-on-yellow signs.

Right: "Billboard Publicity"—4 by 6-foot signs describe street improvement.

If your city is not metered...

or if your present meters are obsolete...

or if your traffic flow needs greater guidance...

Ask to see these valuable CONTROL DEVICES

MILLER
The parking meter that is first choice all over America.

AUTOMATON
The amazing new parking meter that actually winds itself.

Duncan Safety FLASHERS
The all-electric traffic sign that commands greater attention and obedience.

Here are traffic control devices that set the pace others follow. Write today for illustrated catalog and details on how easily they can be purchased.

DUNCAN PARKING METER CORP.

835 No. Wood Street, Chicago 22, Illinois

When writing Duncan Parking Meter Corp., please mention THE AMERICAN CITY

Nine Towns Standardizing Their Traffic Laws

RECOGNIZING that non-uniform laws create traffic confusion and endanger the motorist and pedestrians they were designed to protect, the Down River Chamber of Commerce initiated a traffic-ordinance study project contemplating the adoption of uniform traffic laws in the nine down-river communities. Comparison of the existing traffic laws of the down-river cities with the Model Standards and the State Statutes indicated conclusively that inconsistencies and differences did exist in the traffic regulations. As a result, the communities of River Rouge, Ecorse, Wyandotte, Riverview, Trenton, Grosse Isle, Allen Park, Lincoln Park, and Melvindale named traffic-study committees to work on this project. River Rouge had already undertaken the recodification of all of its ordinances, and was the first community to adopt a new traffic code which was in such close conformance with the recommended model code that we received permission to use the River Rouge ordinance as a model for the other down-river communities. To date, Ecorse and Grosse Ile have adopted this code.

This is the first time that a group of adjacent communities in the United States had undertaken a project of this kind, and a number of state and national traffic organizations are interested in this project, as it may very well establish a working pattern that can be used in other areas for joint action on similar problems.

NELSON T. MORROW
Executive Secretary
Down River Chamber of Commerce
Wyandotte, Mich.

Town Saves Expenses With Voting Machines

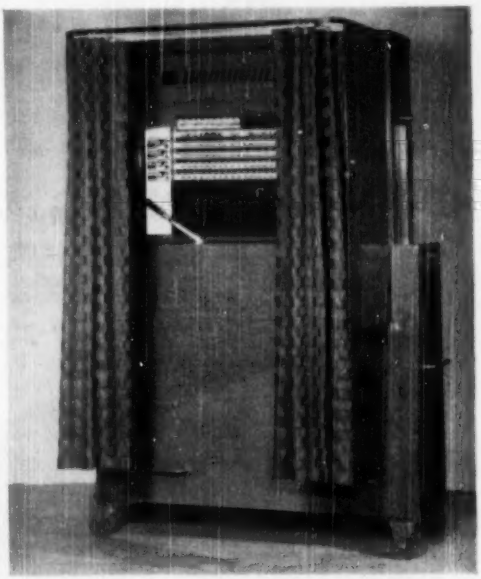
By ROBERT R. SHAW
Alderman
Austin, Minn.

DURING the depression, and also during the period following the war, Austin voting precincts grew considerably in the number of registered voters. The Council realized that the time had arrived when action should be taken to bring voter strength per precinct down to the legal 700 registered voters per precinct. In large primaries and regular elections, it had become an all-night job to complete the count. After all-night vote-counting, serious errors are likely to occur.

Austin, with a population of 18,000 in 1940, had 13 precincts in three wards, and, with a total registration of over 10,000, some of the precincts had reached a total of 1,200 to 1,300 registered voters. It appeared that the job of redistricting would require an increase from 13 precincts to 20 or more. A minimum of seven new precincts would require the employment of 35 additional booth workers, plus extras in the largest elections, and these new booth workers, working on an average of four days annually, including the municipal primary and regular election each spring, would cost at least $1,500 to $1,600 more per year. Added to this new expense would be the cost of complete new equipment for the new polling places, plus the problem of finding new locations for the polling places, with the probability of having to rent some of the needed locations.

Why Not Voting Machines?

As La Crosse was using voting machines, several Austin officials went there on the day of the party primary election. This investigation convinced us that both the officials and the public were well satisfied with the machines.



One of 36 voting machines installed this year to save the election costs and speed voting in the City of Austin, Minn.

The voters stated that the machines were simple and easy, as well as fast, to vote on, and they, together with the booth workers, emphasized the absolute accuracy of the count. The election returns were available immediately at the close of the polls; the savings in election costs, the elimination of the all-night vote counting ordeal, and the prevention of spoiled ballots were added desirable features. The Automatic Voting Machine Company was invited to make a study of our needs and present a report. This report found that, if voting machines would be adopted, we could reduce the number of precincts from the present 13 to 10!

Since the statutes set the hourly rate of pay for the election booth workers at 80 cents per hour, the amounts to be paid to each election official could be reduced considerably, since they would finish their work shortly after the polls closed, instead of having to remain at work all night, and longer. It became clear that biennial savings with voting machines would average more than $3,000. The Council concluded that voting machines presented an opportunity for making substantial savings in election costs, sufficient to amortize their cost completely in 10 years or less and thereafter save our taxpayers many dollars annually.

Bids were asked on 26 voting machines and a contract was let to the Automatic Voting Machine Corporation, of Jamestown, N. Y. Austin will pay for the machines over a period of 10 years out of the savings made possible by their use. They were used for the first time on March 21, the date of our municipal primary, and again on April 4, at the municipal election.

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Zoning and Planning Notes

Edited by NORMAN WILLIAMS, JR.

Rezoning from Business to Residential

NEW YORK. *Shepard* v. *Village of Skaneateles*, 89 North Eastern (2d) 619 (New York Court of Appeals, December 29, 1949).

IN the first Skaneateles zoning ordinance passed in 1926, the outer boundary of the business district was drawn to include an odd-shaped lot (situated on a curve in the street) which projected into and was surrounded on three sides by residential development. As a result of an application for use of the lot as a filling station which was denied in 1930, the zoning map was amended in 1935 to include the lot in a residential zone; and the new zoning ordinance passed in 1943 confirmed the residential zoning. In the residential area nearby, some non-conforming uses existing in 1926 still remained, but there was no further commercial development. In an action for a declaratory judgment that the residential zoning was invalid, Special Term dismissed the complaint, and the Appellate Division reversed and held in favor of the plaintiff; the Court of Appeals reversed again and upheld the residential zoning, in an excellent opinion by Judge Fuld.

Unlike many general introductory discussions in zoning opinions, Judge Fuld's remarks at the beginning made a good deal of sense.

"Zoning laws, enacted as they are to promote health, safety and welfare of the community as a whole (see Village Section 175), necessarily entail hardships and difficulties for some individual owners. No zoning plan can possibly provide for the general good and at the same time so accommodate the private interest that everyone is satisfied. While precise delimitation is impossible, cardinal is the principle that what is best for the body politic in the long run must prevail over the interests of particular parties."

The opinion then noted that zoning regulations could not deprive an owner of *all* beneficial use of his land, nor impose special hardships with no corresponding advantage to the public. Turning to the present case, the residential regulations of the Skaneateles ordinance permitted a large number of uses, and no evidence was presented to show that it was impossible to use the lot in question for any one of these. Moreover, if hardship existed, plaintiffs could presumably obtain a variance. As for the effect on property values, this argument was dismissed rather summarily.

"A possible depreciation in value is not of too great significance, for the pecuniary profits of an individual are secondary to the public welfare. . . . Either plaintiffs' property or the land near it would suffer depending on the board's action, and the board could properly find that the loss sustained by plaintiffs would be offset by the gain to the community in general."

The Court, therefore, held that:

"Since, outside of the general increase in traffic that accompanies the advance of motor travel, there were no changes in the locality tending to render it more commercial. . . . the reasons which would have supported an initial designation of plaintiffs' property as residential now operate to justify the amendment to accomplish that result."

Strictly speaking, this case only passed on the proper zoning for this individual lot. However, in view of the Court's forthright statements about the supremacy of the public interest and the relative unimportance of property values, any well-thought out plan for more restrictive rezoning may be expected to meet with a sympathetic attitude in the New York courts.

Roadside Stands—Sale of "Farm Products"

MASSACHUSETTS. *Deutschmann* v. *Board of Appeals of Canton*, 90 North Eastern (2d) 313 (Supreme Judicial Court of Massachusetts, February 7, 1950).

In the zoning ordinance of Canton, Mass., the regulations for the one-family residence district permitted, *inter alia*,

"Farms . . . and the sale of products raised on farms in the town of Canton from any suitable form of roadside stand, providing the products principally sold are raised on the premises."

The operator of a large, modern dairy applied for a permit for a roadside stand to sell milk (in cartons and paper cups), milkshakes, ice cream and cheese. All ingredients of the things to be sold were raised on the farm, with minor exceptions—flavoring was added to the milkshakes, and flavoring, sugar and gelatine to the ice cream. When a permit was denied, Deutschmann began construction of the stand anyway, and later brought an action in equity to review the denial of the permit. The highest Massachusetts Court held that the provisions quoted above permitted the proposed stand.

In the opinion the Court first held that the clean-hands doctrine should not be invoked in this case, to deny plaintiff a remedy because he had started construction without a permit. Turning, therefore, to the merits, previous Massachusetts decisions had held that "farming" was not confined to tilling land and harvesting crops, but included grazing and raising hay for dairy purposes. The Court, in agreement with a New Hampshire decision, then held that "farm products" includes butter, cheese, ice cream, cider, maple syrup, etc., except where the phrasing of the ordinance is specifically limited to products in their natural state.

"The fact that the products are not in their natural state does not mean that they cease to be products raised on the farm of their owner, who seeks there to sell them. We believe that the nature of the article to be sold is not the sole test, but where, by whom and in what fashion the article is produced are considerations of importance. We do not believe that one who on his premises processes milk and cream from cows on his premises thereby ceases to be a farmer, selling on his farm products there raised."

The control of roadside produce stands in a residence district presents difficult little problems. Perhaps as good a control as any would be a limitation of size, plus a requirement that they be placed a considerable distance from any side lot line, plus some aesthetic control (as in this case).

The Spacious City of the Future

A CITY where sunlight and air are given a fair chance to perform their joyous and health-giving functions; where there are grass and trees to delight the eye and temper the summer heat; where playgrounds are near and safe for every child; where the adult has fields for play and parks for rest; where every school has a spacious site; where the single-family dwelling is the prevailing type; where the zoning ordinance requires ample open spaces for the homes and apartments of every economic group; where the gridiron is not the only planning pattern, but where streets are narrow or broad, curving or straight, as best adapted to topography and use; where there are parkways and forest reserves for pleasure travel; where owners of department stores and theaters provide for their patrons ample facilities for automobile parking; where grade separation at railroad crossings and at intersections of major highways makes safety greater and traffic congestion less; and where the benefits of spaciousness are never set at naught for selfish or short-sighted ends, but are maintained and enhanced for the welfare and happiness, present and future, of the entire community.

Harold S. Buttenheim

—Reprinted from THE AMERICAN CITY for November 1929.

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Admissions Tax—Chicago Levy on Amusements Upheld — Applied to Bowling and Pool Games

In action to enjoin enforcement of city tax on gross receipts from admissions, held that bowling, billiards, and pool games were within meaning of amusements under statute conferring authority upon cities to impose tax upon exhibitions, shows and amusements. *Stiska v. City of Chicago*, 90 N. E. (2d) 742 (Ill., Jan. 18, 1950). *Mod. reh.* Mar. 20, 1950.

Airports—Injury at—City Liability

In action for injuries sustained when something fell on plaintiff while walking through gate at municipal airport to see President Truman, held plaintiff mere licensee in place where he knew he should not be and city could not be held liable. *Nelson v. Kansas City*, 227 S. W. (2d) 672 (Mo., Feb. 13, 1950). *Reh. den.* March 13, 1950.

Annexation — Former Unfavorable Judgment as Barring Future Attempt

Where city sought to annex territory embraced within area which the city previously and unsuccessfully attempted to annex, held that present annexation effort was barred by statute for 2 year period. *Engle v. City of Louisville*, 227 S. W. (2d) 407 (Ky. App., Jan. 20, 1950).

Attorneys—License Tax Upon Sustained

In action to prohibit levy of license tax based on gross receipts upon attorneys at law, held that statutory grant of authority to impose tax upon attorneys existed. *Davis v. Ogden City*, (2d) 616 (Utah, Feb. 25, 1950).

Billiard Tables—Local Power to Regulate as Excluding Power to Prohibit

Where statute authorized city to license, tax, regulate or suppress billiard tables, held that as general policy of state was to license such tables, city could not prohibit them as term "suppress" merely referred to unlicensed tables. *City of Meadville v. Gusselman*, 227 S. W. (2d) 77 (Mo., K. C., App., Feb. 6, 1950).

Excavations — Ordinances — Admission in Evidence in an Action Against City

Where trial court admitted ordinance of defendant city requiring protection of excavations in action for injuries sustained when plaintiff's automobile struck barricade in city street, held that admission of ordinance was prejudicial error as city could not be held to standard of care required by such ordinance. *Von Der Haar v. City of St. Louis*, 226 S. W. (2d) 376 (Mo. App., Jan. 17, 1950). *Reh. den.* Feb. 17, 1950.

Federal Property—Alien Ownership—Local Taxes Held Applicable to

In action to have general property taxes canceled on ground of federal immunity from such taxes, held that property of plaintiff which was vested in Alien Property Custodian of the United States from 1942 to 1949 was subject to general property taxes of defendant city for 1943 fiscal year. *Simonelli v. City of New York*, 95 N. Y. S. (2d) 316 (N. Y. App. Div., Feb. 28, 1950).

Firemen—Injuries Received While On City Streetcar

In action to recover from personal injuries by fireman who was riding on city streetcar as paying passenger, held that notwithstanding fireman's right to ride to and from work free on city street cars he was riding as passenger and entitled to maintain action against city and not limited to workmen's compensation proceeding. *Sullivan v. City and County of San Francisco*, 214 Pac. (2d) 82 (Cal. App., Jan. 27, 1950).

Income Taxes—Validity of Ordinance Imposing on Nonresidents

In action to enjoin deduction of income tax from plaintiff's wages as required by city ordinance, held city had power to provide for income tax and ordinance so providing was not unconstitutional when applied to one employed in city but not a resident. *Angell v. City of Toledo*, 91 N. E. (2d) 250 (Ohio, March 8, 1950).

Intoxicating Liquors—Ordinance Requiring Consent of Property Owners For Sale Held Invalid

In action to review denial of application for liquor-package-store permit by Town of Stratford liquor-control commission, held that requirement that consent of 50% of property owners within certain area be obtained was unconstitutional for failure to prescribe standards to guide actions of such property owners. *Du Pont v. Liquor Control Commission*, 71 Atl. (2d) 84 (Conn., Dec. 14, 1949).

Lumber Yards—Licenses—Landowners' Consent Required—Sufficiency of Consent for School Property

Where City of Chicago ordinance required consent of majority of owners within 150 feet of defendant's property before issuance of license for maintenance of lumber yard, held consent given by Board of Education for school property adjacent to defendant was proper even though title to property was in city. *Dalton v. Joseph Lumber Co.*, 91 N. E. (2d) 450 (Ill. App., March 23, 1950).

Motion Pictures—Local Regulation Of Sunday Showings — Validity of Classification Statute

Where statute classified counties and municipal corporations there by population so that act applied only to one county, held that such act, suspending operation of other statute conferring right on cities to regulate Sunday showing of motion pictures was invalid as a denial of privilege extended to all municipalities not within county to which act applied. *Taylor Theatre v. Town of Mountain City*, 227 S. W. (2d) 30 (Tenn., Feb. 10, 1950).

Peddlers—Dealers With Retainers Not "Peddlers" With City Licensing Ordinance

Where defendant was employed by wholesale automobile accessory firm as salesman to retailers, held that he was not peddler within meaning of city licensing ordinance, as peddler means one dealing with consumers. *Sarrensy v. City of Sarasota*, 45 So. (2d) 118 (Fla., March 10, 1950).

Pensions—Right to Cannot be Forfeited

Where former policeman in City of Fargo became physically incapacitated while in service of city and remained incapacitated after leaving service, held action of civil service commission in striking his name from civil service rolls did not affect his pension rights which when once acquired could not be lost or forfeited except on conviction of felony. *Holcomb v. Hamm*, 42 N. W. (2d) 70 (N. D., March 30, 1950).

School Teachers—New York Subversive Law Sustained

In action to restrain enforcement of statute requiring Board of Regents to list subversive organizations and to dismiss teachers who are members of such organizations, held that statute is constitutional and does not invade due process of law or freedom of speech. *L'Hommedieu v. Board of Regents of University of State of New York*, 95 N. Y. S. (2d) 443 (N. Y. App. Div., March 8, 1950).

Sewer Charges—Owner of Apartments Liable For

Where statute made owner, lessee or tenant using or occupying realty using sewer system liable for charges for use of such system, held owner of four apartment houses from which sewer was discharged into system was liable for charges even though he did not reside in apartment houses. *Batt v. Hampton Roads Sanitation District Commission*, 58 S. E. (2d) 306 (Va., March 13, 1950).

Sewers—Overflow Causing Damage —City Liabilty

In action to recover damages to house resulting from overflow of storm sewer, held whereby changed conditions, such as paving of streets, drainage system becomes inadequate and situation known to city it is liable for damages resulting therefrom. *Cannon v. City of Macon*, 58 S. E. (2d) 563 (Ga. App., March 16, 1950).

Sewer System—Surface Water—Negligent Operation of—Governmental function

In action for injuries sustained as result of alleged negligent operation of storm sewer system, held that such operation is governmental and not ministerial function, and therefore, no liability since no nuisance was involved. *Williams v. City Council of Augusta*, 58 S. E. (2d) 208 (Ga. App., March 9, 1950).

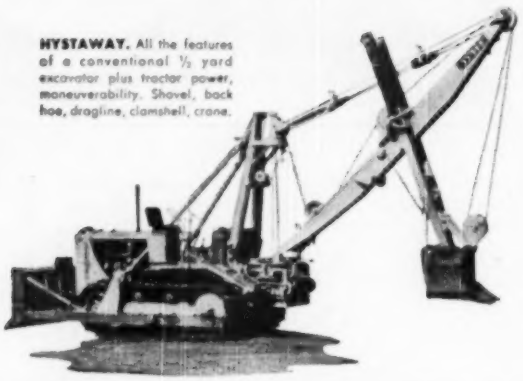
Taxation—Race Horses—Situs of

In action to recover taxes paid upon plaintiff's horses which were in jurisdiction of defendant city during horse races, held that situs of horses for tax purposes was not defendant city but home ranch of such horses in another county. *Church v. City of Los Angeles*, 214 Pac. (2d) 550 (Cal. App., Feb. 16, 1950).

Trucks—Forbidding on Certain Streets—Validity of

In action to enjoin enforcement of ordinance forbidding heavy truck traffic on certain streets, held ordinance unreasonable and void because a burden on interstate commerce. *Associated Transport, Inc., v. City of Syracuse*, 93 N. Y. S. (2d) 423 (N. Y. Sup. Ct., Onondaga Co., Nov. 21, 1949).

29 HYSTER TRACTOR TOOLS



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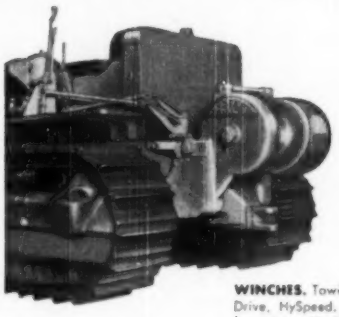

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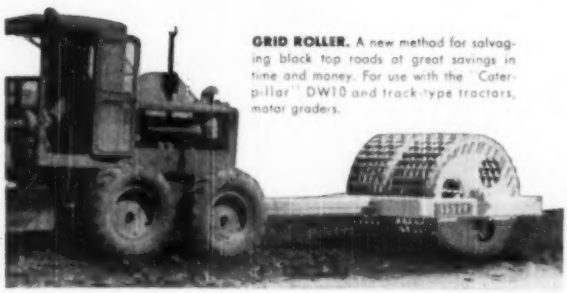

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Students Make Community Survey

GRADUATE students at Columbia University's Teacher's College assisted in carrying out a comprehensive community survey during July and August, to pave the way for possible future urban-redevelopment and public-housing projects in the Morningside-Manhattanville area of New York City.

Invaluable practical experience in community work was received by the 219 interviewers, who were mainly teachers and school administrators taking summer courses at Columbia. Much of the area of upper Manhattan in which the survey was conducted is dilapidated, and residents are of many religious and racial backgrounds. Of the 10,000 families living in the area, 3,000 were interviewed.

The results of the survey will show rents now being paid; number of rooms used; number of people living in the apartment; rents which might be paid for a better apartment; rooms needed; the desire to remain in the community; place of work; amount of income of the family unit, and the use of local church and recreational facilities.

The survey was financed by Morningside Heights, Inc., composed of forty leading educational and religious organizations in the area. Students for interviewing were those enrolled in a course called "Education in the American Culture." They received special instruction in interviewing techniques, and also spent considerable time analyzing their results.

Report Issued on Self-Service 'Gas' Stations

TWO hundred self-service gasoline stations are now operating in the United States, but they are still banned in at least 14 states. In Seattle, Wash., a referendum vote after the legislative body had vetoed such stations was two to one in favor of granting permission. Insurance rates for the new type of station originally were increased 50%, but have abruptly returned to former rate levels.

Reporting on this controversial issue, the American Society of Planning Officials, in its June 1950 Planning Advisory Service Information Report,* states that the only objection raised against the stations that deserves consideration is that of safety. In order that proper rules and standards may be established to guard against potential hazards, the Information Report contains background data on the development of the stations, and gives locational and design requirements. An experience report from Los Angeles County, which contains more than half of all the existing self-service stations, is included in the bulletin. Examples of state and local regulations are presented; the first legal decision on "self-serves" is summarized and some bibliographic references given.

* Planning Advisory Service reports are available only through subscription. Information may be obtained by writing to the American Society of Planning Officials at 1313 East 60th St., Chicago 37, Ill.

Mayor Dorothy C. Davis, and the new all-woman council of Washington, Va.

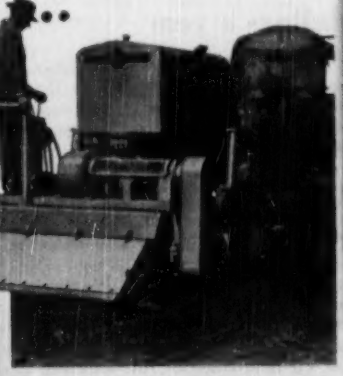
Virginia Elects All-Woman Slate

THAT municipal men-folk had better pay more heed to the women in town concerning community affairs, if they don't want to be replaced in office by the fair sex, has been demonstrated in Washington, Va. (1950 population, 250). During the municipal elections in July, the women swept the men from every one of the town-council seats.

Elected mayor was 28-year-old Mrs. Dorothy C. Davis, wife of a Justice Department attorney, and a mother of three children. Winning the six council seats were Mrs. Louis Price, a school teacher with previous experience on the council; Mrs. Achsa Miller, housewife; Miss Ruby Jenkins, secretary to the county agent; Mrs. Dorothy Hawkins, housewife; Mrs. Bobbie Critzer, wife of Sheriff J. W. Critzer; and Miss Elizabeth Racer, beauty-parlor operator.

The women conducted a lively campaign, pointing to grass growing in the streets, dogs running loose, and burned-out street lamps. Of the 122 qualified voters in the town, 99 turned out at the polls.

SCARIFIES...
PULVERIZES..
MIXES...



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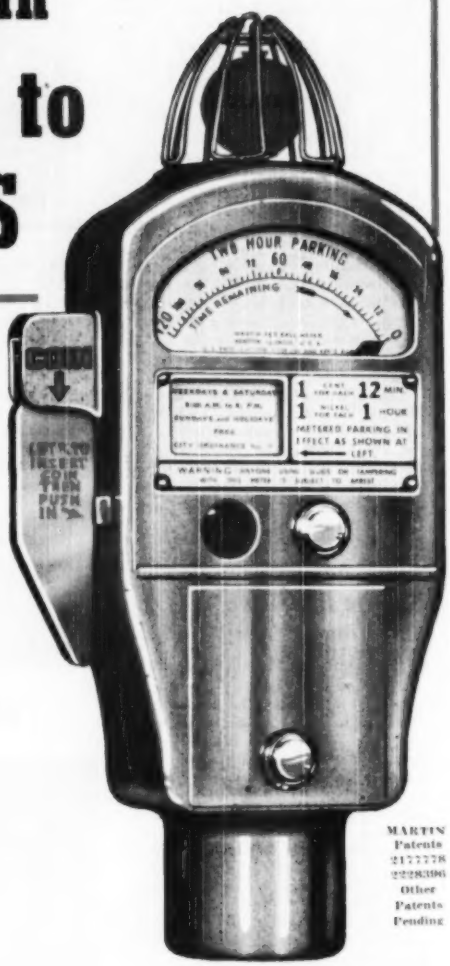
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INSERT COIN THEN PUSH IN
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Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

L. M. McConnell
Warren, Pa.

Alfred S. Harding
Bridgton, Maine

W. H. Barton
Ketchikan, Alaska

A. P. Hamann
San Jose, Calif.

E. P. Wagner
Wayzata, Minn.

RAYMOND P. BOTCH, Business Manager of Carroll College, accepted the appointment at Pendleton, Ore.

WILLIAM H. CAMPER, manager of Burlington, N. C., succeeds ROY S. BRADEN at Raleigh, N. C.

WILLIS ENDICOTT has succeeded R. MERRITT BAKER at Auburn, Calif.

JOHN C. FERRIS has accepted the appointment at New Smyrna Beach, Fla. He formerly was manager there from 1927 to 1932, and from 1943 to 1948.

HUGH B. HINES, civil engineer, is the first manager of Sanford, N. C.

THOMAS HOBBS, administrative assistant at Raleigh, N. C., is the new manager of Dunn, N. C. CHARLES R. STOREY was the former manager.

MARK E. KEANE, assistant manager of Wichita, Kans., will take over the manager duties at Shorewood, Wis., on September 1.

R. N. KLEIN, personnel officer of San Jose, Calif., has succeeded JOHN S. MORIARTY at Monterey Park, Calif.

BERNARD L. MARSH, manager of Guilford, Maine, since 1949, has accepted the appointment at West View, Pa.

JOHN C. MILLIKEN, city engineer, is the new manager at Duncan, Okla.

RALPH W. SNYDER, administrative assistant at Berkeley, Mich., has accepted the appointment at Westerville, Ohio. He succeeds ROSS SHOEMAKER.

T. EDWARD TEMPLE, manager of Spartanburg, S. C., since 1947, has accepted the position as first manager of Danville, Va.

THOMAS W. WILLIS, who was assistant manager at Raleigh, N. C., has been appointed first manager of Newton, N. C.

KENNETH F. WATTS, city engineer, has replaced CYRUS F. BREEDEN as manager of Winfield, Kans.

CECIL C. WYATT, city clerk of Kingston, Ontario, will become the first manager of Victoria, British Columbia, Canada.

GLEN WOODS has replaced CHARLES A. NORTH as manager of Neosho, Mo.

CLARENCE E. RIDLEY
Director
International City Managers' Association

Washington Cities Adopt Policy Statement

STATE LEAGUES of municipalities and municipal officials in other parts of the country can take a pointer or two from the way in which the recent convention of the Association of Washington Cities was organized and how it proceeded on the road to accomplishment of municipal objectives.

Well in advance of the meeting, which was held in Walla Walla in June, a tentative draft of state municipal policy was circulated among member cities for their consideration. The statement covered both state and local relations and federal-municipal relations. It emphasized that the State of Washington has become an urban state, and had the following statement of purposes:

1. Efficient and adequate municipal government at the lowest possible cost consistent with good administration.
2. Home rule—a recognition of the equal dignity of municipalities along with the state and Federal governments and the right to handle their own affairs free from domination by the state government in matters of local policy and organization.
3. Adequate sources of revenue to finance local government.
4. Promotion of intelligent public understanding of the problems and actions of municipal government.

The policy points which followed were defined as objectives for 1950-51.

The comprehensive statement was held for discussion until the concluding morning of the conference. Chester Biesen, executive secretary of the Association, reports that the tentative draft of state municipal policy was then adopted practically "as is," but with several additions to it.

State legislators cannot fail to be impressed by a demonstration of municipal solidarity and determination such as was displayed in Walla Walla. A clarification of municipal objectives and policy on an annual basis should do a great deal to expedite the passage of desired legislation and emphasize the importance of home rule.

The statement of municipal policy and resolutions adopted at the meeting are published in Information Bulletin No. 129, Association of Washington Cities in cooperation with the Bureau of Governmental Research and Services, University of Washington, Seattle 5.

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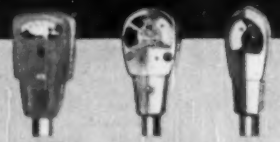

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Conventions — When and Where

Conventions listed this month for the first time are indicated by an asterisk (*).

Sept 6-8—St. Paul, Minn.
AMERICAN WATER WORKS ASSOCIATION—Minnesota Section. Annual Conference (Hotel St. Paul). Sec.-Treas., R. M. Finch, 518 Metropolitan Life Bldg., Minneapolis 1, Minn.

Sept. 6-8—Asbury Park, N. J.
GOVERNMENTAL RESEARCH ASSOCIATION. Annual Conference. Sec., Louis D. Brown, 30 Rockefeller Plaza, New York 20, N. Y.

Sept. 7-8—Upper Saranac Lake, N. Y.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Fall Meeting (Saranac Inn). Sec.-Treas., R. K. Blanchard, 50 W. 50th St., New York, N. Y.

Sept. 10-12—Valley City, N. D.
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Convention (Hotel Rudolph). Exec. Sec., Myron H. Atkinson, City Auditor, Bismarck, N. D.

Sept. 10-12—Virginia Beach, Va.
LEAGUE OF VIRGINIA MUNICIPALITIES. Annual Meeting (Hotel Cavalier). Exec. Sec., Harold I. Baumes, 905 Travelers Bldg., Richmond, Va.

***Sept. 11-12 — Shawnee-on-Delaware, Pa.**
INTERSTATE COMMISSION ON THE DELAWARE RIVER BASIN. Annual Meeting (Shawnee Inn). Exec. Sec., James H. Allen, Broad Street Station Building, Philadelphia 3, Pa.

***Sept. 11-12—Eagles Mere, Pa.**
PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOCIATION. Annual Conference (Forest Inn). Sec.-Treas., Claude C. Fogelman, 1717 Main St., Northampton, Pa.

Sept. 11-13—Lake of Bays, Ontario
CANADIAN INSTITUTE ON SEWAGE AND SANITATION. Annual Meeting (Bigwin Inn). Sec., Dr. A. E. Berry, Parliament Bldgs., Toronto, Ont., Canada.

Sept 11-14—Pittsburgh, Pa.
NATIONAL TAX ASSOCIATION. Annual Conference (Hotel William Penn). Sec., Ronald B. Welch, P. O. Box 1799, Sacramento 8, Calif.

Sept. 12-15—San Francisco, Calif.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Conference (Civic Auditorium). James E. Jagger, Gen. Mgr., 22 E. 38th St., New York 16, N. Y.

Sept. 13-14—Huntington, W. Va.
AMERICAN WATER WORKS ASSOCIATION—West Virginia Section. Annual Convention (Hotel Prichard). Exec. Sec., J. B. Harrington, care of State Health Department, Charleston, W. Va.

Sept. 13-15—Portland, Ore.
NORTHWEST PUBLIC POWER ASSOCIATION. Annual Meeting (Hotel Portland). Sec., Gus Norwood, Andresen and MacArthur Blvd., McLoughlin Heights, Vancouver, Wash.

Sept. 13-15—Mitchell, S. D.
SOUTH DAKOTA MUNICIPAL LEAGUE. Annual Meeting (Hotel Lawler). Sec., R. D. Falk, Law Bldg., Vermillion, S. D.

Sept. 13-16—Salt Lake City, Utah
UTAH MUNICIPAL LEAGUE. Annual Meeting (Hotel Newhouse). Exec. Dir., Tom McCoy, Newhouse Hotel, Salt Lake City, Utah.

Sept. 17-20—Poland Springs, Maine
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Convention. Sec., Joseph C. Knox, 609 Statler Bldg., Boston 16, Mass.

Sept. 18-20—Wichita, Kans.
THE LEAGUE OF KANSAS MUNICIPALITIES. Annual Meeting (Hotel Broadview). Exec. Dir., John G. Stutz, 512 Capitol Federal Bldg., Topeka, Kans.

Sept. 18-21—New York, N. Y.
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Convention (Hotel Commodore). Sec., Irvin Shulsinger, 11 West 42nd St., New York 18, N. Y.

Sept. 19-21—Davenport, Iowa
IOWA SEWAGE WORKS ASSOCIATION. Annual Meeting (Hotel Blackhawk). Sec.-Treas., Leo Holtkamp, Box 310, Webster City, Iowa.

Sept. 19-21—Oshkosh, Wis.
AMERICAN WATER WORKS ASSOCIATION—Wisconsin Section. Annual Meeting (Hotel Raulf). Sec., Leon A. Smith, City Hall, Madison 3, Wis.

Sept. 19-21—North Platte, Nebr.
LEAGUE OF NEBRASKA MUNICIPALITIES. Annual Convention (Hotel Pawnee). Exec. Sec.-Treas., C. E. Beals, 607 Continental Bldg., Lincoln, Nebr.

Sept. 20-22—Glens Falls, N. Y.
MUNICIPAL ELECTRIC UTILITIES ASSOCIATION OF NEW YORK STATE. Annual Conference (Hotel Queensbury). Exec. Sec., B. N. Sparks, 93 Park St., Tupper Lake, N. Y.

Sept. 20-24—Madrid, Spain
INTERNATIONAL FEDERATION OF LANDSCAPE ARCHITECTS. Annual Conference. Sec., C. de Cossio de las Barcenas, Museo Romantico, Calle San Mateo, No. 13, Madrid, Spain.

***Sept. 21-23—Boise, Idaho**
IDAHO MUNICIPAL LEAGUE. Annual Convention (Hotel Owyhee). Exec. Sec., Robertson W. Smith, 455 W. Liberty St., Weiser, Idaho.

Sept. 24-27——New York, N. Y.
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Hotel Commodore). Chairman, E. G. Wetzel, Port of New York Authority, 111 Eighth Ave., New York 11.

Sept. 24-27—Omaha, Nebr.
AMERICAN CHAMBER OF COMMERCE EXECUTIVES. Annual Meeting (Hotel Fontanelle). Exec. Sec., Elizabeth Glenn, 1615 H St. N.W., Washington, D. C.

Sept. 25-26 — Bolton Landing, Lake George, N. Y.
COUNTY OFFICERS ASSOCIATION OF THE STATE OF NEW YORK. Annual Summer Convention (Lake George Sagamore). Exec. Sec., Donald C. Scribner, County Bldg., Johnstown, N. Y.

Sept. 25-26—Oshkosh, Wis.
WISCONSIN CHIEFS OF POLICE ASSOCIATION. Annual Conference (Hotel Athearn). Exec. Sec., Walter H. Wagner, Chief of Police, Sheboygan, Wis.

Sept. 25-27—Los Angeles, Calif.
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Hotel Biltmore). Gen. Sec., A. W. Baker, 292 Madison Ave., New York 17, N. Y.

Sept 25-28—Dallas, Texas
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Convention (Hotel Baker). Exec. Sec., Weldon B. Wade, 30 No. LaSalle St., Chicago, Ill.

Sept. 25-28—Chicago, Ill.
THE ASSOCIATION OF SCHOOL BUSINESS OFFICIALS. Annual Convention (Hotel Sherman). Sec.-Treas., H. W. Anderson, 306 E. Lovell St., Kalamazoo, Mich.

Sept. 26-29—Atlantic City, N. J.
PENNSYLVANIA WATER WORKS ASSOCIATION. Annual Convention (Hotel Claridge). Sec.-Treas., W. A. Kufs, 920 N. Third St., Harrisburg, Pa.

Sept. 27-28—Mammoth Cave, Ky.
KENTUCKY MUNICIPAL LEAGUE. Annual Convention (Hotel Mammoth Cave). Exec. Sec., Carl B. Wachs, Kastle Hall, University of Kentucky, Lexington 29, Ky.

Sept. 27-29—Santa Fe, N. M.
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Meeting (Hotel La Fonda). Exec. Sec., George Turre, Sanitary Engineer, Denver Water Dept., City and County Bldg., Denver, Colo.

***Sept. 28-29—Columbus, Ohio**
AMERICAN WATER WORKS ASSOCIATION—Ohio Section. Annual Meeting (Neil House). Sec., F. P. Fischer, Wallace & Tiernan Co., 812 Perry Payne Bldg., Cleveland 13, Ohio.

Sept. 28-29—Aberdeen, S. D.
SOUTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Meeting (Hotel Alonzo Ward). Exec. Sec., Charles E. Carl, Division of Sanitary Engineering, Pierre, S. D.

Sept 28-29—San Francisco, Calif.
WESTERN GOVERNMENTAL RESEARCH ASSOCIATION. Annual Conference (Hotel Bellevue). Exec. Sec., John C. Bollens, 346 Library Annex, University of California, Berkeley 4, Calif.

Sept. 28-30—York, Pa.
PENNSYLVANIA LEAGUE OF THIRD-CLASS CITIES. Annual Convention (Hotel Yorktowne). Pres., W. E. Greenwood, City Hall, Harrisburg, Pa.

Oct 1-3—St. Louis, Mo.
AMERICAN WATER WORKS ASSOCIATION—Missouri Section, and MISSOURI WATER AND SEWAGE CONFERENCE. Annual Convention (Hotel Sheraton). Sec.-Treas., Warren A. Kramer, State Office Bldg., Jefferson City, Mo.

Oct. 2-6—Cleveland, Ohio
NATIONAL RECREATION ASSOCIATION CONGRESS. Annual Meeting (Hotel Statler). Exec. Dir., Joseph Prendergast, 315 Fourth Ave., New York 10, N. Y.

Oct. 4-6—Detroit, Mich.
MICHIGAN MUNICIPAL LEAGUE. Annual Convention (Hotel Statler). Exec. Dir., John Huss, 205 S. State St., Ann Arbor, Mich.

***Oct. 4-6—Jefferson City, Mo.**
MISSOURI MUNICIPAL LEAGUE. Annual Conference (Hotel Governor). Exec. Dir., Bruce J. Carl, Guitar Bldg., Columbus, Ohio.

Oct. 4-6—Bismarck, N. D.
NORTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Convention (Hotel Patterson). Sec.-Treas., Jerome H. Svore, State Health Dept., Bismarck, N. D.

Oct. 7-12—Colorado Springs, Colo.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Hotel Antlers). Exec. Sec., E. J. Kelly, 1424 K St., NW., Washington 5, D. C.

***Oct. 8-10—Springfield, Ill.**
ILLINOIS MUNICIPAL LEAGUE. Annual Meeting (Hotel Leland). Exec. Dir., A. L. Sargent, 537 South Fourth St., Springfield, Ill.

Oct. 8-11—Milwaukee, Wis.
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference (Hotel Schroeder). Exec. Dir., Albert H. Hall, 730 Jackson Place, NW., Washington 6, D. C.

Oct. 9-12—Washington, D. C.
FEDERATION OF SEWAGE WORKS ASSOCIATIONS. Annual Meeting (Hotel Statler). Sec. W. H. Wisely, 325-26 Illinois Bldg., Champaign, Ill.

Oct. 9-12—Atlantic City, N. J.
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Conference (Hotel Ambassador). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

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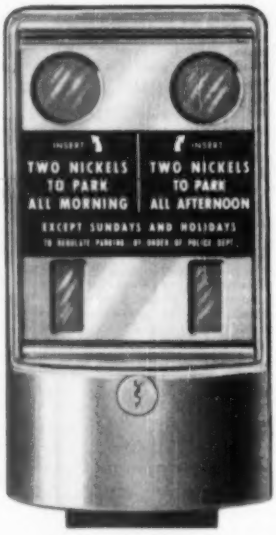

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Parkit-Lockit clock-less meters create *more profit*, cost less when you buy them—cost less to maintain them. Every traffic engineer should make a study of what Fringe Parking will do to alleviate parking lot problems. Write or wire for more complete data.

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Why invest $50.00 to $100.00 per meter for Fringe Parking especially when the thoroughly efficient smooth-operating clock-less Parkit-Lockit meter costs only $21.00! And they eliminate expensive repair shop and maintenance men, banish worry about coin jams, frozen clocks, faulty mechanism, etc. Install Parkit-Lockit Fringe Meters in your community as a practical substitute for expensive parking lots.

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THE PARKIT-LOCKIT CO.

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Oct. 10—New York, N. Y.
REGIONAL PLAN ASSOCIATION OF NEW YORK. Annual Conference (Hotel Roosevelt). Exec. Vice-Pres., C. McKim Norton, 205 E. 42nd St., New York 17, N. Y.

***Oct. 11-13—Chicago, Ill.**
AMERICAN SOCIETY OF CIVIL ENGINEERS. Annual Meeting. Asst. to the Sec., Don P. Reynolds, 33 West 39th St., New York 18, N. Y.

***Oct. 11-13—Mobile, Ala.**
AMERICAN WATER WORKS ASSOCIATION—Alabama-Mississippi Section. Annual Meeting (The Battle House). Sec., John L. Snow, Layne-Central Co., 601 First National Bank Bldg., Montgomery 4, Ala.

Oct. 15-18—New Orleans, La.
AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Annual Meeting (Hotel Roosevelt). Sec.-Treas., L. A. Jackson, Robinson Memorial Auditorium, Little Rock, Ark.

Oct. 15-18—New York, N. Y.
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Conference (Hotel New Yorker, Ninth Regiment Armory). Exec. Dir., D. F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 16-17—Des Moines, Iowa**
IOWA ASSOCIATION OF MUNICIPAL UTILITIES. Fall Convention (Hotel Kirkwood). Sec., Glenn Yarger, Waverly, Iowa.

Oct. 16-18—Pittsburgh, Pa.
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA. Annual Conference (Hotel William Penn). Exec. Sec., W. M. Porter, Hotel William Penn, Pittsburgh, Pa.

Oct. 16-19—Detroit, Mich.
NATIONAL ASSOCIATION OF HOUSING OFFICIALS. Annual Meeting (Hotel Statler). Exec. Dir., J. M. Ducey, 1313 E. 60th St., Chicago 37, Ill.

Oct 16-20—Chicago, Ill.
NATIONAL SAFETY COUNCIL. 38th National Safety Congress and Exposition (Hotels Stevens, Congress, Morrison, LaSalle). Gen. Sec., R. L. Forury, 425 North Michigan Ave., Chicago 11, Ill.

***Oct. 18-20—Pittsburgh, Pa.**
AMERICAN WATER WORKS ASSOCIATION—Pennsylvania Section. Annual Meeting (Hotel Roosevelt). Sec., L. S. Morgan, Pennsylvania Dept. of Health, 415 First National Bank Bldg., Greensburg, Pa.

Oct. 19-20—Fond du Lac, Wis.
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Convention (Hotel Retlaw). Exec. Sec., Frederick N. MacMillin, 30 East Johnson St., Madison 3, Wis.

Oct. 19-21—Springfield, Ill.
ILLINOIS ASSOCIATION OF PARK DISTRICTS. Annual Convention (Hotel Leland). Exec. Sec., Miss Marjorie Dickinson, 401½ East Capitol, Springfield, Ill.

Oct. 22-24—Asheville, N. C.
NORTH CAROLINA LEAGUE OF MUNICIPALITIES. Annual Convention (Grove Park Inn). Exec. Sec., Mrs. Davetta L. Steed, 1009 Raleigh Bldg., Raleigh, N. C.

Oct. 22-25—San Antonio, Texas
LEAGUE OF TEXAS MUNICIPALITIES. Annual Convention (Hotel Gunter). Exec. Dir., E. E. McAdams, 2220 Guadalupe St., Austin 21, Tex.

***Oct. 23-24—Gainesville, Fla.**
NATIONAL PUBLIC HEALTH ENGINEERING CONFERENCE. Annual Conference (Hotels Thomas and White House). Sec., John E. Kiker, Jr., Professor of Public Health Engineering, University of Florida, Gainesville, Fla.

Oct. 23-25—Charleston, S. C.
AMERICAN WATER WORKS ASSOCIATION—Southeastern Section. Annual Meeting (Hotel Fort Sumter). Sec.-Treas., T. A. Kolb, 433 Wade Hampton Bldg., Columbia, S. C.

Oct. 23-25—Los Angeles, Calif.
LEAGUE OF CALIFORNIA CITIES. Annual Meeting (Hotel Biltmore). Exec. Dir., Richard Graves, Hotel Claremont, Berkeley 5, Calif.

Oct. 23-25—Memphis, Tenn.
AMERICAN WATER WORKS ASSOCIATION—Kentucky-Tennessee Section. Annual Meeting (Hotel Peabody). Sec.-Treas., R. P. Farrell, 420 Sixth Ave. N., Nashville, Tenn.

Oct. 25-27—Detroit, Mich.
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Annual Meeting (Hotel Detroit-Leland). Sec.-Treas., T. L. VanderVelde, Michigan Dept. of Health, Lansing 4, Mich.

Oct. 25-28—San Diego, Calif.
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Conference. Sec., H. C. Medbury, Engineer of Water Purification, San Francisco Water Dept., Millbrae, Calif.

Oct 26-27—Des Moines, Iowa
AMERICAN WATER WORKS ASSOCIATION—Iowa Section. Annual Meeting (Hotel Fort Des Moines). Gen. Mgr., H. V. Pedersen, Marshalltown Water Works, Marshalltown, Iowa.

Oct. 26-28—Atlantic City, N. J.
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Fall Meeting (Hotel Madison). Sec.-Treas., C. B. Tygert, Box 178, Newark.

***Oct. 27-28—Springfield, Mass.**
MASSACHUSETTS FEDERATION OF PLANNING BOARDS. Annual Meeting (Hotel Sheraton). Miss M. T. Downey, Clerk, Room 43, City Hall, Boston, Mass.

Oct. 30-Nov. 3—St. Louis, Mo.
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting (Kiel Auditorium). Exec. Sec., Reginald M. Atwater, M.D., 1790 Broadway, New York 19, N. Y.

Nov. 1-3—Wilmington, Del.
AMERICAN WATER WORKS ASSOCIATION—Chesapeake Section. Annual Conference (Hotel Du Pont). Sec.-Treas., C. J. Lauter, 5902 Delacarlia Place, Washington 16, D. C.

Nov. 12-15—Fort Lauderdale, Fla.
AMERICAN WATER WORKS ASSOCIATION—Cuba and Florida Sections, and FLORIDA SEWAGE WORKS ASSOCIATION. Joint Cuban-Florida Water and Sewage Conference. Chairman, S. K. Keller, A.W.W.A., Florida Section, 504 Pennsylvania Ave., Clearwater, Fla.

Nov. 13-15—Portland, Ore.
LEAGUE OF OREGON CITIES. Annual Convention (Hotel Multnomah). Exec. Sec., Herman Kehrli, University of Oregon, Eugene, Ore.

***Nov. 19-22—Buffalo, N. Y.**
NATIONAL CONFERENCE ON GOVERNMENT. Annual Conference (Hotel Statler). Exec. Sec., Alfred Willoughby, National Municipal League, 299 Broadway, New York, N. Y.

Nov. 20-21—Washington, D. C.
CHAMBER OF COMMERCE OF THE UNITED STATES. Businessmen's Conference on Urban Problems. Sec., Ralph Bradford, 1615 H St., N.W., Washington, D. C.

Nov. 26-30—Houston, Texas
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Conference (Hotel Shamrock). Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago 37, Ill.

Nov. 27-29—Nor Orleans, La.
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Conference (Hotel Roosevelt). Exec. Dir., Charles S. Rhyne, 730 Jackson Pl., N.W., Washington, D. C.

Nov. 27-30—Atlanta, Ga.
CIVIL SERVICE ASSEMBLY OF THE UNITED STATES AND CANADA. Annual Conference (Hotel Biltmore). Dir., Kenneth O. Warner, 1313 E. 60th St., Chicago 37, Ill.

***Nov. 29-Dec. 1—Atlantic City, N. J.**
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Meeting (Hotel Chalfonte-Haddon Hall). Exec. Dir., James J. Smith, 603 Trenton Trust Bldg., Trenton, N. J.

Nov. 30-Dec. 2—Chicago, Ill.
AMERICAN PUBLIC WELFARE ASSOCIATION. Annual Meeting (Hotel Edgewater Beach). Dir., Miss Loula Dunn, 1313 E. 60th St., Chicago 37.

Nov. 30-Dec. 2—Tucson, Ariz.
AMERICAN WATER WORKS ASSOCIATION—Arizona Section, and ARIZONA SEWAGE AND WATER WORKS ASSOCIATION. Annual Convention (Hotel Pioneer). Sec., Mrs. Helen Rotthaus, State Dept. of Health, Phoenix, Ariz.

Dec. 3-6—Washington, D. C.
AMERICAN MUNICIPAL ASSOCIATION. Annual Meeting (Hotel Statler). Exec. Dir., Carl H. Chatters, 1313 E. 60th St., Chicago 37, Ill.

Dec. 4-7—Miami, Fla.
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Meeting (Hotel McCalister-Columbus). Exec. Sec., Hal H. Hale, 917 National Press Bldg., Washington 4, D. C.

***Dec. 11-20—Lima, Peru**
FIFTH CONGRESS OF INTERAMERICAN MUNICIPAL HISTORY. Annual Congress. Sec. Gen., Jose L. Franco, Instituto Interamericano de Historia Municipal e Institucional, Cuba 316, La Habana, Cuba.

Jan. 9-12—Washington, D. C.
HIGHWAY RESEARCH BOARD. Annual Meeting (National Academy of Science). Dir., Roy W. Crum, 2101 Constitution Ave., Washington 25, D. C.

Mar. 12-14—Milwaukee, Wis.
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Meeting (Hotel Schroeder). Pres., E. R. Needles, International Bldg. Washington 4, D. C.

***Feb. 5-7—Denver, Colo.**
THE ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS. Annual Meeting (Hotel Cosmopolitan). Exec. Sec., Ward K. Parr, 1223 East Engineering Bldg., Ann Arbor, Mich.

***Feb. 26-March 1—Boston, Mass.**
ASSOCIATED GENERAL CONTRACTORS OF AMERICA. Annual Convention (Hotel Statler). Mng. Dir., H. E. Foreman, 1227 Munsey Bldg., Washington, D. C.

State-Local Taxes Up As Federal Collections Drop

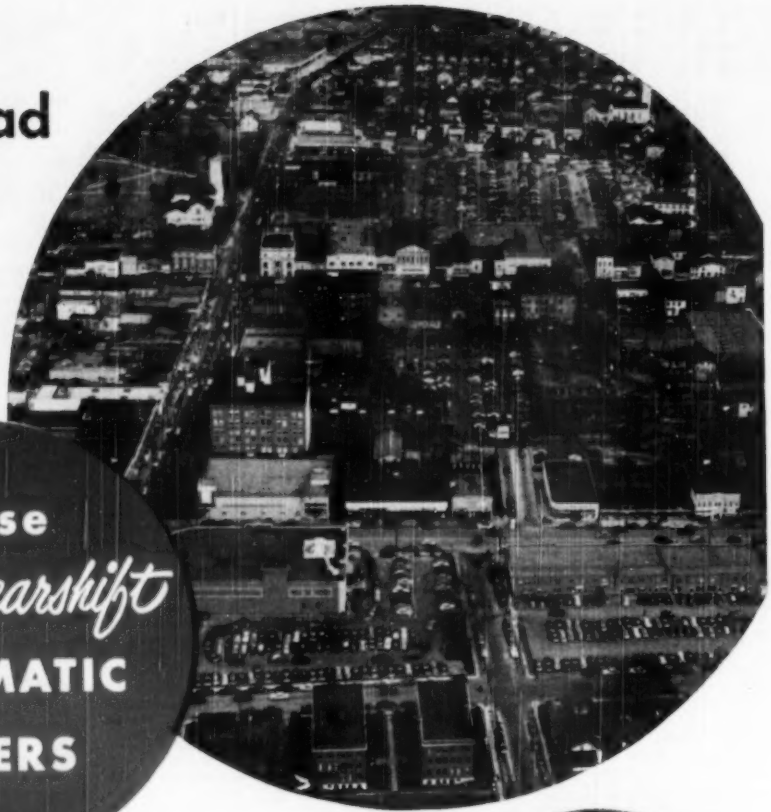
FEDERAL, state, and local government tax revenue in 1949 amounted to $53,586,000,000, according to a report on *Governmental Revenue in 1949* which has been issued by the Census Bureau. This was 2% less than the record $54,495,000,000 set in 1948, but it exceeded tax revenue collected in any previous year.

The 1948-1949 decrease was the net result of a 6% drop in federal collections and of rises in tax collections of the states and local governments equaling 7% and 13%, respectively. Tax revenue to the federal government decreased from $40,104,000,000 to $37,810,000,000; state taxes rose from $7,791,000,000 to $8,349,000,000, and local government taxes rose from $6,601,000,000 to $7,427,000,000. These amounts relate to net collections in the various fiscal years, after deduction of tax refunds.

The total American tax bill in 1949 was equal to $359 per person. The federal government took 71% of this amount, or $253 per person. The states received $56 per person, and local governments the remaining $50 per person. Tax collections in 1942 amounted to $23,027,000,000, or $171 per capita.

Because of financial grants and tax sharing, each level of government had for its own spending a different amount than it collected directly in taxes and charges. Taking account of such transfers, the federal government had 65% of all governmental revenue in 1949 "for its own purposes," the states 13%, and local governments 22%.

Hempstead weighed the facts...



chose DUAL *Gearshift* AUTOMATIC METERS

BECAUSE metered parking *should* be planned as a long-range or permanent improvement in traffic control, Hempstead, Long Island, proceeded carefully . . . weighed *all* the facts.

As in hundreds of other cities, this resulted in the selection and installation of Dual Automatics—a new 1600-meter installation—sure to cinch topmost advantages all down the line. For these *gearshift* meters offer peak performance . . . on-the-spot time and coin conversion as conditions demand . . . proved freedom from troubles that waste time and revenue . . . simple, *automatic* operation that wins everyone's approval in all kinds of weather, year in, year out.

Yes, there *are* lots of factors to weigh. If you are considering new or improved metered parking facilities, get the facts on the latest Duals . . . Bulletin DU-504 for on-street parking, Bulletin DU-505 for off-street parking.

THE DUAL PARKING METER COMPANY
A subsidiary of The Union Metal Manufacturing Company
Canton 2, Ohio

YOUR BEST ANSWER TO EVERY PARKING PROBLEM

Municipal and Civic Publications

Municipal and Rural Sanitation

MUNICIPAL AND RURAL SANITATION—*By Victor M. Ehlers and Ernest W. Steel. Fourth Edition. McGraw-Hill Book Co., New York, N. Y. 548 pp. $4.50.*

The authors, the former a director of the Bureau of Sanitary Engineering for the Texas State Department of Health, and the latter a professor of sanitary engineering of the University of Texas, strive to cover in a relatively small volume a tremendously large field. One chapter covers sewage disposal. Three chapters cover water supply. One discusses refuse disposal. Three chapters cover fly and mosquito control. One is on rodent control, two on milk and food sanitation. Two are on plumbing, ventilation and air conditioning. Also discussed are light, housing, school sanitation, industrial hygiene, tourist camps and courts, swimming-pool sanitation, and other miscellaneous subjects.

Power and Design Handbook

MECHANICAL ENGINEERS' HANDBOOK OF POWER DESIGN—*By J. Kenneth Salisbury and Colin Carmichael, editors. Two volumes. John Wiley and Sons, New York, N. Y. 12th Edition. $8.50 each.*

These two texts perpetuate the excellent reference material originated by William Kent. The expansion of the power field has induced the present editors to produce the work in two volumes. Mr. Salisbury's volume, *Power*, covers the entire field of heat-power engineering and transportation, as well as fluid flow. Atomic energy is also discussed in the text. Mr. Carmichael's volume, *Design and Production*, is directed to engineers who design and manufacture machinery, appliances, mechanical equipment and other engineered products.

Reinforced Concrete Design

BASIC REINFORCED CONCRETE DESIGN—*By G. E. Large. The Ronald Press Co., New York, N. Y. 334 pp. $5.50.*

A text prepared specifically for classroom work by a professor seeking and having some success in finding a rather original approach to the subject of reinforced concrete design. An interesting side feature is the description that the author uses telling of men who have been outstanding authorities in this field. The text generally appears to be a practical reference useful both to the student and the practicing engineer.

Influences on Concrete

INFLUENCES ON CONCRETE—*By A. Kleinlogel. Frederick Ungar Publishing Co., New York, N. Y. 201 pp. $7.50.*

An annual text, translated from the German by F. S. Margenroth. It has no table of contents nor preface. It contains a short discussion analyzing the basic rules for avoiding damage to concrete and reinforced-concrete structures. This is then followed by an alphabetical list of significant terms and a discussion of each. Any engineer whose work involves concrete construction will find this book most interesting.

Sewerage and Sewage Treatment

SEWERAGE AND SEWAGE TREATMENT—*By William A. Hardenbergh. International Textbook Co., Scranton, Pa. Third Edition. 467 pp. $6.50.*

A practical, usable text on sewage works. This edition carries a rewritten chapter on industrial wastes and a revised section on trickling filters. Its data on the activated sludge process also have been expanded.

Municipal Off-Street Parking Report

MUNICIPAL OFF-STREET PARKING SYSTEMS IN THE NEW YORK METROPOLITAN REGION—*By Frederick P. Clark. Regional Plan Bulletin, August 1950. No. 76. 205 East 42nd St., New York 17, N. Y. 8 pp. $2.*

A highly informative survey and report on what municipalities in the New York region are doing to solve their parking problems. The well-illustrated report contains information on methods of financing, costs, types of operation, and special aspects such as meters, authorities, and zoning in 60 municipalities. During 1949, 43 new municipal parking fields, mostly operated without parking fee, were established in the region, with an additional 29 parking fields completed in the first three months of 1950. A supplement giving more detailed information on each of the 60 municipal parking systems established is available at $2 per copy, postpaid, from the Regional Plan Association.

Transit and Traffic Study

TRANSIT MODERNIZATION AND STREET TRAFFIC CONTROL—*By John Bauer and Peter Costello. Public Administration Service, 1313 East 60th St., Chicago 37, Ill. 1950. 271 pp. $5.*

The thesis of this book is that municipal control of mass transportation and general street traffic should be combined under a single administrative agency. The purpose of such a program should be (1) to obtain thoroughly modernized mass transportation; (2) to get unnecessary automobiles off the streets; and (3) thus to attain real relief from street-traffic congestion.

The authors are quite dogmatic in asserting that the modern bus is the only kind of vehicle that is suited for the stated purpose, because of its economy and operating flexibility. The feasibilities of street railways and trolley coaches are reviewed.

Suggestions are made for municipal study, control, and administration of local transportation systems.

Urban Growth Theories Analyzed

THE THEORY OF RESIDENTIAL GROWTH AND STRUCTURE—*By Lloyd Rodwin, Ph.D. Article in* The Appraisal Journal, *July 1950 issue. Published by the American Institute of Real-Estate Appraisers, 22 West Monroe St., Chicago, Ill. $1.75 per copy.*

This 22-page article represents another landmark in the advance of fundamental understanding about the forces of urban growth. It is highly recommended reading for city planners and others concerned with basic land utilization and development. The author exposes some of the faulty notions concerning patterns of residential growth which have come to be widely accepted, and advances some theories of his own. Rebuttal articles by Homer Hoyt and Walter Firey will appear in the October 1950 issue of *The Appraisal Journal.*

Cities and Earthquakes

CITIES AND THE EARTHQUAKE PROBLEM—*Information Bulletin No. 125. Association of Washington Cities in cooperation with the Bureau of Governmental Research and Services, University of Washington, Seattle 5, Wash. May 1950. Mimeo. 25 pp.*

An excellent report on earthquake hazards as they affect cities and local building codes and ordinances. Sections are devoted to comments and reviews on earthquake history, earthquake regulations and recommendations for both existing structures and new construction. There is a report on liability resulting from projections and falling objects upon public ways, and the Los Angeles Parapet Ordinance is reproduced in full.

New Public Administration Text

PUBLIC ADMINISTRATION—*By Herbert A. Simon, Donald W. Smithburg and Victor A. Thompson. Alfred A. Knopf, Inc., 501 Madison Ave., New York 22, N. Y. 582 pp. $6. (Textbook price, $4.50.)*

This is an outstanding, ably prepared volume on the scope of public administration. Unlike a number of dry-as-dust basic textbooks on the subject, this one is designed to make meaningful, interesting reading to whoever goes through its pages, be he student, citizen and taxpayer, political scientist, or public administrator.

In the foreword, the authors emphasize one of their major purposes in this way: "In facing the problem of communication with readers, we have attempted to keep always in the forefront that an administrative organization is a group of people—of flesh-and-blood human beings—who behave in certain ways, partly because of the ideas, prejudices, personalities, and abilities they bring to the organization, and partly because of the influence upon them of the other members of the administrative group and the society about it."

The authors, who all have had varied experience in numerous governmental agencies—federal, state and local—make it clear that they have set out to avoid sterile formalism and dogmatism and have grounded the book thoroughly on the psychology of human relations in organizations. The text places at least as much emphasis upon the problems of organization units of moderate sizes as upon the grand issues of executive organization.

The book gives serious attention to the relationship, so vital in a democracy, between politics and administration. It offers a careful appraisal of the Hoover Commission proposals. In focusing on the realities of administration, the book includes excellent sections on securing teamwork in an organization, the struggle for existence, the strategy of planning, the tactics of execution, the evaluation of administrative efficiency, and administrative responsibility. Copious bibliographical notes are included at the end of the book for readers who wish to pursue further points raised in the various chapters.

Public Library Inquiry

THE PUBLIC LIBRARY IN THE UNITED STATES—*By Robert D. Leigh. Columbia University Press, 2960 Broadway, New York 27, N. Y. 1950. 272 pp. $3.75.*

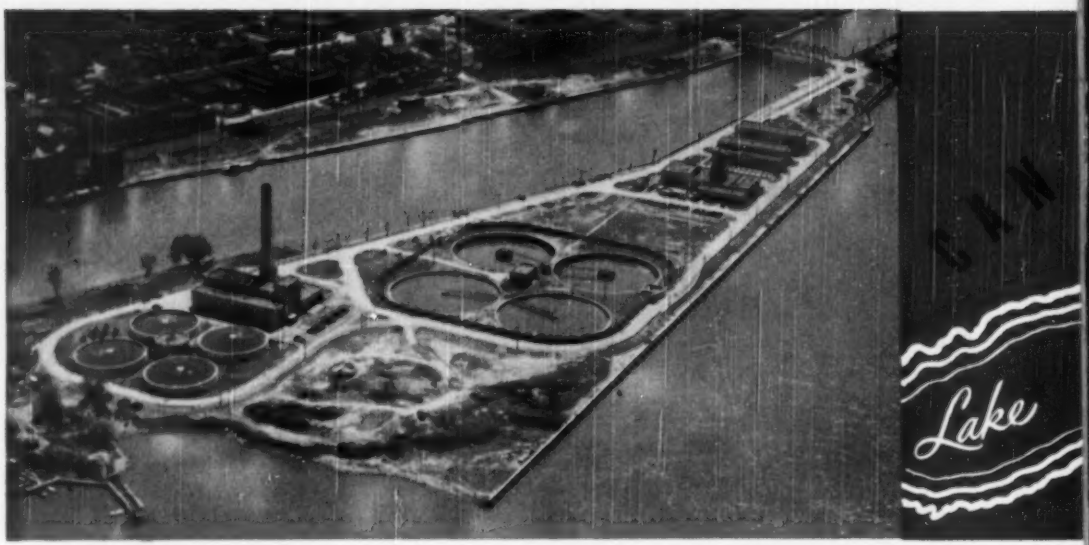
In this general report of the Public Library Inquiry, the author, who is President of Bennington College, summarizes the total findings of the inquiry, including an analytical interpretation, and presents conclusions and recommendations for further development. Following a brief description of the purpose and methods of the Inquiry itself, this study presents the most complete discussion available of the many factors influencing public library service in the United States. The discussion concludes with a broad survey of probable directions of development, in relation to three alternative views of the official objectives and indicated functions of the public library in the whole task of communication.

Drawings for Standard Highway Signs

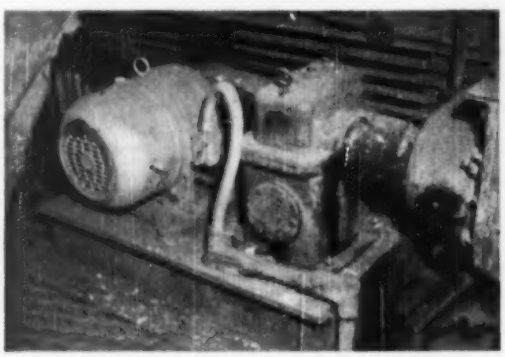
DRAWINGS FOR STANDARD HIGHWAY SIGNS AVAILABLE—*Bureau of Public Roads, Washington, D. C.*

A complete set of small-scale working drawings for the standard highway signs specified in the "Manual on Uniform Traffic Control Devices for Streets and Highways" has just been issued by the Bureau of Public Roads, Washington 25, D. C. Distribution will be restricted to sign manufacturers and official agencies responsible for the design, fabrication, or purchase of highway signs.

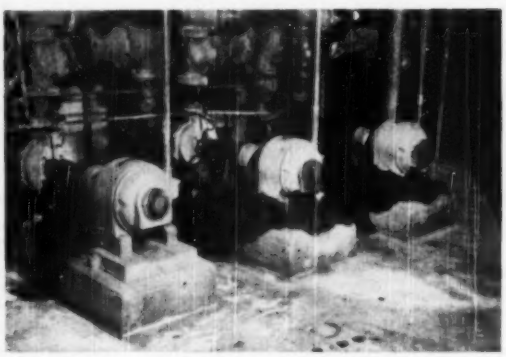
CLEAN WATERS *at*



Airview of the Bird Island Sewage Treatment Works at Buffalo, N. Y. Treatment includes pumping, screening, aeration, chlorination, sedimentation, sludge digestion and incineration.



A G-E 7½-hp induction motor drives a sludge mixer. With their extra protection against physical damage, electrical breakdown and operating wear and tear, G-E motors assure long life and high service continuity.



Three G-E 7½-hp splashproof induction motors drive filtrate pumps for vacuum filters. These motors have already given 12 years of service although constantly subjected to moisture from dripping and splashing.

GENERAL ELECTRIC

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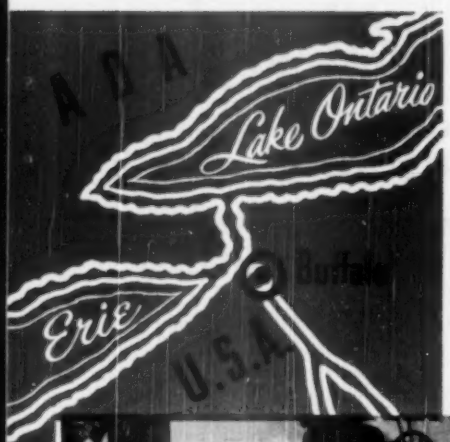
Buffalo HELP KEEP A TREATY

G-E Equipped Treatment Plant Guards International Waters

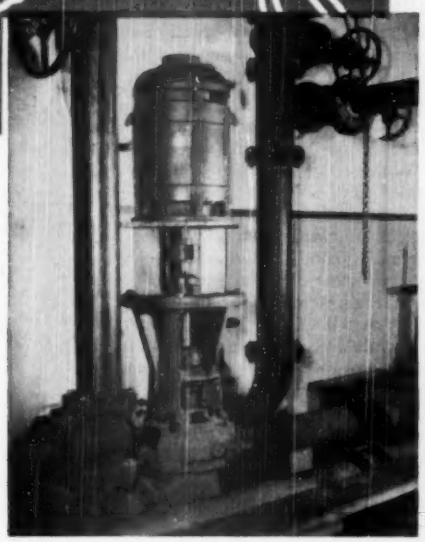


Since its dedication in 1938, Buffalo's sewage treatment plant has helped make good a U.S.–Canadian Treaty signed over 40 years ago to protect international waters from pollution. Located on Bird Island in the Niagara River, the plant has helped keep waters clean from Buffalo to Lake Ontario.

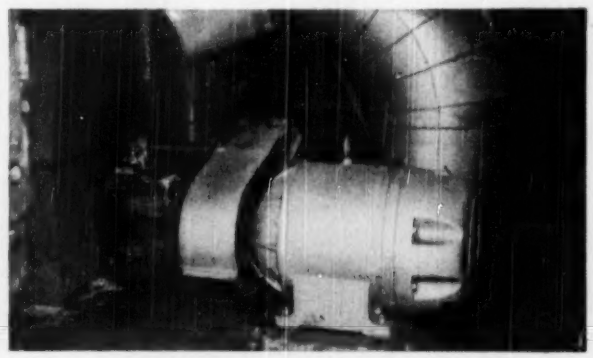
Plant officials attribute much of the success of the Buffalo plant's operation to the outstanding service given by some 100 General Electric motors. In many cases operating under the most severe conditions, the motors have given continuous and reliable performance.

General Electric can help your community get that new or improved sewage treatment plant by (1) assisting you and your consultant in formulating electrical plans, and (2) building public support through the use of G-E.'s full-color sound movie, *Clean Waters*.

Contact your General Electric representative early in the planning stage. *Apparatus Dept., General Electric Company, Schenectady, N. Y.*



Sludge circulating pumps for the digester tank are driven by G-E 10-hp vertical drip-proof motors. G-E vertical motors now have improved bearing lubrication and double-end ventilation for longer life and more efficient operation.



This is one of the G-E 50-hp, totally enclosed, fan-cooled induction motors used to drive exhaust fans for the sludge incinerator. The corrosive atmospheres in buildings like this call for motors that can take it.

GE SEWAGE-PLANT

MI-CO PARKING METERS...the best paying investment a city can make

It's an established fact that MI-CO Meters earn more because they are seldom out of order. The benefits of this unusual dependability are two-fold: 1) sustained high earnings over long periods of time (the city realizes a greater return on its parking meter investment), and 2) better public relations (the motorist knows he will get *all* the parking time he pays for, *every time*).

The record of MI-CO low maintenance and high earnings is the same everywhere. Here's proof from Michigan: "Meter income hits a new high." From New York: (300 MI-CO's) "Servicing small, not more than 2 meters (½ of 1%) a week." Another from New York: (560 MI-CO's) "There is no parking meter which would give us better service." From California: (700 MI-CO's) "Very satisfactory." From Indiana: (361 MI-CO's) "Meter maintenance cost is very low." From Ohio: (496 MI-CO's) "A real success. Only 2 service calls on one meter (No. 84) in 5 years of continuous operation." From Connecticut: (1450 MI-CO's) "Annual maintenance cost 12 cents per unit." From Canada: (254 MI-CO's) "Easy to service, and have stood up mechanically through one of the toughest winters we ever experienced." Again from Canada: (218 MI-CO's) "Meters operated at as low as 40° below zero."

North, South, East, West, the story is the same . . . MI-CO Parking Meters are seldom out of order, consequently they earn more. We'll be glad to send you all the facts. And when you buy, judge the merits of a meter on its performance and acceptance . . . not for a few years, but for ten years or more—the real test of a parking meter. May we hear from you?

MI-CO METERS, 237 Court St., Covington, Ky.
Division of The Michaels Art Bronze Co., Inc.

Zoning for Off-Street Parking

ZONING AND PARKING FACILITIES (REQUIREMENTS FOR OFF-STREET AUTOMOBILE PARKING FACILITIES IN ZONING AND OTHER LOCAL ORDINANCES) —*By David R. Levin, Bulletin No. 24, Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. Two sections.* 161 *pp.* 1950. $3.

This is an analysis, in two sections, of the requirements for provision of parking facilities in connection with various property uses, as contained in 155 local ordinances. Section 1 consists of discussion on: machinery provided for implementing requirements; nonconforming uses and retroactive application of requirements; specific uses and the average amount of parking space required for each use; competitive advantage of any business which has adequate parking space for its customers; location and design of parking facilities and recommended size of a parking space, responsibility for provision and maintenance of facilities; penalties for noncompliance with provisions; and legality of requirements.

A model for a section in a zoning or other local ordinance to require provision of parking facilities is included.

Section 2 of the study consists of a basic table, which contains the ordinance data for each of the 155 local units.

Text on Public Utilities

ECONOMICS AND PUBLIC UTILITIES—*By Eli Winston Clemens. Appleton-Century-Crofts, Inc., 35 West 32nd St., New York 1, N. Y.* 1950. 765 *pp.* $5.75.

The purpose of this competent volume is to draw together the lessons of various fields of study, including those of economics, accounting, business, law, public administration, and government control into a single integrated study.

The writer, Professor of Economics at the University of Maryland, has been primarily interested in training men for public service. His philosophy, as outlined in Chapter 1, embraces a belief in continuous disciplined competition between public and private ownership.

Chapters are included on the various forms of utilities, there is discussion of their rates, and an interesting chapter on "The Rate of Return" which goes deeper into the subject than most such discussions. The book concludes with chapters on municipal public ownership of utilities, and regional projects. Extensive bibliographic references and a lengthy table of cases lend authority to the volume.

New Government Organization Manual

UNITED STATES GOVERNMENT ORGANIZATIONAL MANUAL, 1950-51—*Federal Register Division, National Archives and Records Service, General Services Administration. Order from Superintendent of Documents, Government Printing Office, Washington 25, D. C.* 650 *pp.* $1.

This manual contains official statements of the agencies of the United States Government, including the executive, legislative, and judicial branches. The organization of each agency is described, its legal authority is outlined, its functions are explained, and its key officials are listed, together with the address. Statements on 22 selected international organizations appear in the 1950-51 edition of the manual. Important to researchers are the list of several hundred representative publications of the Government, and the appendix on abolished agencies.

Convention Registration

CONVENTION REGISTRATION — *The International Association of Convention Bureaus, 910 Dixie Terminal Building, Cincinnati 2, Ohio.* 1950. 16 *pp.*

A highly practical discussion of factors which go into the registering of delegates at conferences or conventions. The aim of the publication, prepared by H. E. Boning, Manager of the Convention Bureau of Kansas City, is to review prevailing practices, and suggest improvements which would make for reasonable and necessary economy.

Planning and Housing Reports

BERGEN COUNTY, N. J. — Bergen County's Park Program. Third Annual Report of Bergen County Park Commission. 1949. Tables. Maps. Illus. 8 pp.

CHICAGO, ILL.—Blighted Vacant Land. Chicago Land Clearance Commission. May 1950. Tables. Maps. Mimeo. 93 pp.

DETROIT, MICH. — The Manufacturing Economy of the Detroit Region, Part II. By Paul M. Reid. Detroit Metropolitan Area, Regional Planning Commission, Detroit. July 1950. Charts. Tables. Mimeo. 49 pp.

DODGE CITY, KANS.—A Comprehensive Planning Survey. Bureau of Government Research, University of Kansas, Lawrence. Charts. Maps. Illus. 114 pp. $3.

MARYLAND—Economic Effects of the Chesapeake Bay Ridge on the Eastern Shore. Maryland State Planning Commission, 100 Equitable Building, Baltimore, Md. April 1950. Tables. Maps. Mimeo. 49 pp. 25 cents.

PHILADELPHIA, PA. — Recommended Program of Public Improvements. Philadelphia City Planning Commission, Market Street National Bank Building, Philadelphia 7, Pa. October 1949. Tables. Maps. Illus. 113 pp.

ROANOKE, VA.—Zoning in the City of Roanoke, Va.; Questions and Answers for Your Information. Office of the Board of Zoning Appeals and the Planning Board, Room 2, Municipal Building, Roanoke. 17 pp.

ROCHESTER, N. Y. — Capital Improvement Program of the City of Rochester, N. Y. The Planning Commission. Jan. 1950. 3 pp.

ST. LOUIS, MO.—Progress or Decay? St. Louis Must Choose. Harland Bartholomew and Associates, 317 North Eleventh St., St. Louis, Mo. May 1950. Charts. Illus. 23 pp.

SEATTLE, WASH.—Analysis of Proposed Annexation to Seattle of Lake City area. Bureau of Governmental Research and Services, University of Washington, Seattle. June 12, 1950. Map. 8 pp.

SYRACUSE, N. Y.—Your Government. Syracuse Governmental Research Bureau, Inc., 351 South Warren St., Syracuse 2, N. Y. June 12, 1950. Tables. Mimeo. Unpaged.

TENNESSEE—Publications of the Tennessee State Planning Commission, 1935-1950. Tennessee State Planning Commission, 417 Seventh Ave. N., Nashville. April 1950. 32 pp.

UNITED NATIONS — Minimum Standards of Occupancy and Fitness for Habitation of Urban Dwellings Enforceable Under Penalty. United Nations Economic and Social Council, Lake Success, N. Y. March 23, 1950. Mimeo. 146 pp.

——Report on the European Social Welfare Seminar Organized by the United Nations. United Nations Economic and Social Council, Lake Success, N. Y. Feb. 9, 1950. Mimeo. 102 pp.

UNITED STATES — An Approach to Organization Within Government to Advance the Conservation of Natural Resources. By Samuel H. Ordway, Jr., Vice-President, The Conservation Foundation. 1950. 15 pp.

——Proceedings, Fifth Annual Conference. Association of State Planning and Development Agencies, 1313 E. 60th St., Chicago 37, Ill. May 8-10, 1950. Mimeo. 128 pp.

——Selected References on Housing of Minorities. Housing and Home Finance Agency, Office of the Administrator, Washington, D. C. April 1950. Mimeo. 45 pp.

——Conserving and Developing Our Resources. By Stephen Raushenbush. Social Action, 289 Fourth Ave., New York 10, N. Y. May 15, 1950. Illus. 39 pp. 15 cents.

WINNIPEG, MANITOBA—Summary of Recommendations Comprehensive Plan Greater Winnipeg. 1950. Charts. Tables. Maps. Illus. 27 pp.

Other Reports Received

ALLIANCE, NEBR. — Annual Report of Your City Government, 1949. Tables. Graphs. 32 pp.

ATLANTA, GA.—Annual Report, 1949. Report of the City Comptroller. Tables. 90 pp.

BERKELEY, MICH. — Facts About Berkley That You Should Know. Annual Report, 1948-1949. Illus. Tables. Graphs. 36 pp.

CINCINNATI, OHIO—Annual Report, 1949. Maps. Tables. Illus. 83 pp.

EAST CLEVELAND, OHIO—Annual Report, 1949. Graph. 4 pp.

GEORGIA—Clean Streams in Georgia. Georgia Department of Public Health, Water Pollution Control, Atlanta 3. Illus. 32 pp.

GLENDALE, ARIZ.—Annual Report. City Operations, 1949-1950; Budget Digest, 1950-1951. Mimeo. Illus. 42 pp.

HOLLAND, MICH.—Annual Report, 1949. Board of Public Works, City Hall, Holland. April 1950. Tables Graphs. 60 pp.

ILLINOIS—Filiation and Related State Legislation. Illinois Legislative Council, Springfield. Publication No. 100. May 1950. 33 pp.

KANSAS CITY, KANS.—Annual Report, 1949. Board of Public Utilities. Illus. 40 pp.

LEWISTON, MAINE—Annual Report for year ending March 31, 1950. *The Industrial Heart of Maine.* Edited by Lucien Label, City Clerk. Illus. Tables. 59 pp.

LINDEN AND ROSELLE, N. J.—Second Annual Report of the Linden Roselle Sewerage Authority for the period Feb. 1, 1949, to Jan. 31, 1950. Mimeo. Tables. Illus. 25 pp.

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Here on Central Street in Lowell, Mass., Monotube Poles contribute to highly efficient lighting.

How to cut the long-range cost of "see-ability"

HERE is an excellent example of uniform, highly efficient street lighting—the kind that reduces nighttime accidents, helps traffic to flow easier, and gives business districts a new night "lift".

Mighty important in the scheme of things are properly designed, properly equipped poles of precisely the right height for the conditions involved. Here, as in hundreds of other cities, the poles are tall, graceful, continuous-tapered Monotubes... *cold-rolled for exceptional strength.*

These poles, you may be sure, offer *all* the advantages of the most modern street lighting practice : : : and more besides! Because of their high-strength, one-piece construction and complete simplicity, they'll do their job perfectly for unlimited years with a very minimum of care and maintenance.

To find out about *all* the gains you'll make with Monotubes in your street lighting plans, write The Union Metal Manufacturing Co., Canton 5, Ohio.

UNION METAL

Monotube Street Lighting Standards

Public Golf Course
Leased to Private Concessionaire

PHILADELPHIA has three public golf courses, operated by the Fairmount Park Commission. For years, they have been run without profit.

But recently, John B. Kelly, a well-known sportsman and a member of the Commission, conceived an idea which may take the municipal parks recreational program out of the red.

For the first time in its history, publicly owned land in the park was leased to a private concessionaire on July 17 for a new type, night-and-day, streamlined, nine-hole golf course.

The new course, opened on August 3, is operated by Louis L. Rittenhouse, retired Chicago manufacturer.

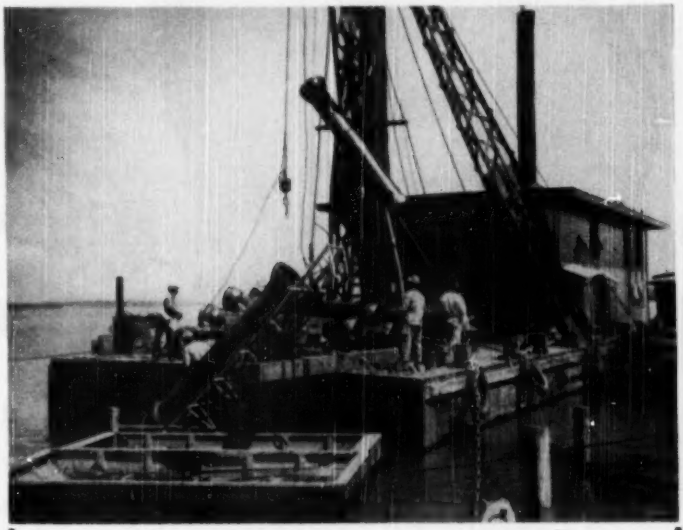
The terms of the lease are unusual for municipalities. Mr. Rittenhouse obtained permission to use park ground on agreement to spend $70,000 in grading the land and erecting the necessary equipment, which includes two refreshment stands and a comfort station.

As rental, Mr. Rittenhouse, who now lives at Merion Station, Pa., has agreed to pay 20% of gross receipts from the golf course and 10% of the gross from food sales. The concession is operated by a corporation which he heads.

Other unusual clauses are included in the lease, which broke all precedents with respect to public land in Philadelphia. Under its terms, the Fairmount Park Commission may take back the 13-acre property on 60 days' notice at any time after the first year.

If this option were exercised at the end of the first year, the Commission would pay the operators of the golf course 80% of the construction cost. If the option were not exercised until the end of the second year, the payment would be 60% of the construction cost; and there would be similar reductions until the end of the fifth year, at which time the property would become city-owned without cash payment.

To forestall possible criticism of using public land for a private, profit-making venture, Mr. Kelly pointed out that the Commission now loses money on all its public golf courses.



16" Water Pipe Line under John's Pass, Fla., being installed in 35 feet of water

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Phone 3-2530 CLEARWATER, FLA.

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General Sales Offices

ANNISTON, ALABAMA

TAKES pride in announcing the resumption of pressure pipe manufacture at its recently completed modern plant located at Anniston, Alabama. This plant produces Super deLavaud cast iron pipe, centrifugally, in modern long lengths.

Inquiries addressed to our nearest sales office will be appreciated.

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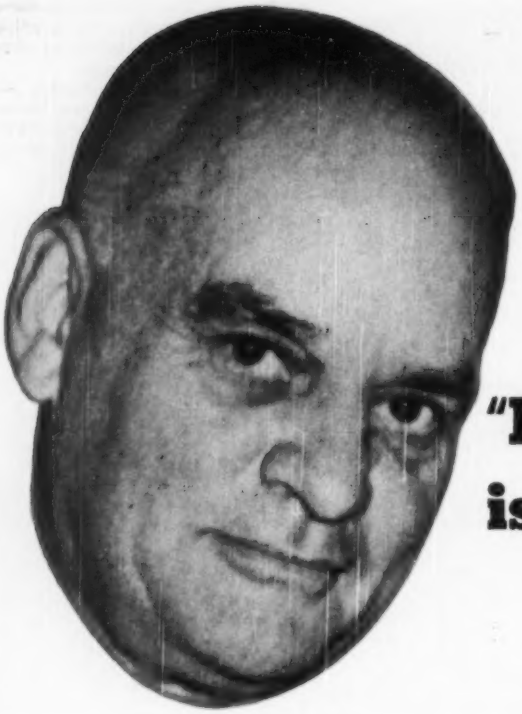


"Highway Safety is your business"

says **Rudolph F. King,**
Registrar of Motor Vehicles
Commonwealth of Massachusetts

IN an address before the Electric Institute of Boston, Inc., Mr. King made the following statement: "Darkness is so significant a traffic hazard that the prevention of only one-third of the adult pedestrian fatalities which occur after dark would save more lives than the elimination of all pedestrian fatalities in the daytime. Together—public officials and engineers—we can accomplish results which should minimize the condemnations of victims who cry out to us 'Make our Streets Safe! Beat Darkness, our worst killer'."

The Street and Traffic Safety Lighting Bureau, 155 East 44th St., New York 17, N. Y.

Transfer Station Handling of Refuse

(*Continued from page* 109)

stalls may be sealed off during the dumping of trucks containing ashes and other refuse, while the stall is thoroughly cleared of any dust. All refuse is weighed on a Fairbanks scale with a 24-foot platform. The building is equipped with a truck-washing room, a garage under the dumping platform for truck and trailer storage, as well as squad rooms and modern locker and shower facilities for the employees of the garbage service.

The dual problem of controlling both odor and dust emissions from this station in the face of the rather heavy daily concentrations of refuse and the relatively large volume of air to be dealt with was a matter of some concern, requiring special study and some pioneering. The District was assisted by a special review of the preliminary design by the consulting firm of Greeley and Hansen of Chicago.

To facilitate such control, the building was in general divided into two sections, i.e., the space under the main platform was reserved for garage, squad rooms, and heating plant; the upper or main portion of the building was provided with ventilation designed for the treatment of air. Fan capacities for this upper floor provide approximately seven changes of air per hour at 85,300 cfm through three American Blower Corporation fans. Two, providing 26,800 cfm, serve for dust collection in the trailer stalls. One, of 58,500 cfm capacity, is used for odor control at the railroad siding. Intake louvers were especially designed to concentrate most of the capacity as near the source of dust and odor as possible, as well as at entrance and exit doors. The air from the trailer stalls is passed through cyclones before being introduced into the filter and canister room in order to insure minimum dust loading. Provision was made to by-pass ventilating air directly to the chimney during times when treatment was unnecessary.

Vented air from both the odor and dust side of the building may be passed through American Air Filter Company fiber-glass filters and Conner Engineering Corporation Dorex carbon canisters, thereby effecting a 95% removal of all offending odors. While the overall cost of the building, including railroad spur and engineering amounted to $918,700, it is significant that the cost of the equipment for odor absorption, filters, and cyclones was but $37,400.

The chimney of the building is 100 feet in height, and was divided into four sections or ducts. The center duct is round and receives air from the heating system. The outer annular space is divided into three ducts for a portion of the height (45 feet); one for the large fan ventilating the odor side of the building, and two smaller ducts for the dust-control fans (trailer side).

The decision to use spun-glass filters and activated carbon for final treatment was prompted somewhat by the fact that the odor- and dust-control system would be operated only for a short time, but when needed would be highly effective. Most of the refuse being delivered to the transfer station is concentrated in the middle of the day, with the gravest odor problem during the summer months and the gravest dust problem during the winter months (ash season). Experience under actual operating conditions during the past winter and summer have proved the system to be both flexible and highly satisfactory.

Another feature which is conducive to maintaining cleanliness within the building was the provision of ample facilities for use of water. Standpipes are installed at the entrance of each trailer stall.

The preliminary plans and layout for this plant were handled by the Division of Sanitation, Department of Sanitary Engineering, with final design and specifications by the Municipal Architect, D. C.

Easy to lay MECHANICAL JOINT

M & H VALVE AND FITTINGS COMPANY
ANNISTON, ALABAMA

The wide use of Standardized Mechanical Joint Cast Iron Pipe for water supply systems has created an urgent demand for Mechanical Joint Valves, Hydrants and Accessories. M & H has been a leader in recognizing this important trend and can supply AWWA Gate Valves with Mechanical Joint ends, in sizes 2" to 30" inclusive . . . with Mechanical Joint Cutting-In-Sleeves, . . . and Mechanical Joint Hydrants in all sizes and all types.

M & H Mechanical Joint features are: Ease and speed of insulation, construction economy, joint deflection, leak-tight, long life. Used with AWWA, Classes A, B, C, D; Federal Specification WW-P-421; or Classes 100, 150, 200, 250 Centrifugal Pipe.

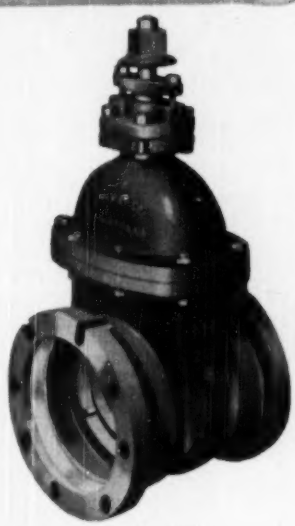


Fig. No. 67M

WRITE FOR CIRCULAR No. 49

Our New Circular No. 49 shows important installation dimensions of M & H AWWA Mechanical Joint Hydrants and Valves . . . Underwriters and Associated Factory Mutual approved Post Indicator Valves . . . and Cutting-In-Sleeves.

M & H Products - Everywhere

MARK-TIME "Hurricane" PARKING METERS PROVE THEIR SUPERIORITY

The positive acceptance by municipalities across the nation of the new, revolutionary Mark-Time "Hurricane" manual parking meter is conclusive proof that where factual comparison is the rule, the superiority of the Mark-Time "Hurricane" is unquestioned.

Basically, the superiority of the Mark-Time meter lies in its proven, rugged, trouble-free simplicity. The "Hurricane", with its efficient, simple design and exceptionally low number of moving parts, reduces maintenance costs to the lowest possible denominator thus assuring an uninterrupted flow of revenue.

Another feature of the Mark-Time "Hurricane" is its exclusive "Hurricane" door which completely eliminates the possibility of dirt, dust, or bad weather from entering the coin slot and jamming the meter.

These are the reasons why the Mark-Time "Hurricane" is preferred. This is why, also, the Boston City Traffic Commission, this year, after an exhaustive survey and factual comparison of manual versus automatic meters, chose the Mark-Time "Hurricane" thus proving that "Hurricane" meters are equally efficient in both large and small communities.

M. H. Rhodes, Inc. welcomes your inquiries and is ready at all times to have its engineers consult and cooperate with your traffic officials. There's no obligation. Write today for complete information on the new Mark-Time "Hurricane" manual meter.

M. H. RHODES, INC. MARK-TIME **HARTFORD, CONN.**

Manufactured and sold in Canada by Ontario Hughes Owens Co., Ltd., Ottawa, Ontario.

Omaha Utilities Debt Free

THE Metropolitan Utilities District of Omaha, Nebr., paid the last of its bonded indebtedness on July 1.

The debt covered $7,553,000 worth of water-plant purchase bonds issued by the City of Omaha in 1912, and the $5,000,000 gas-plant purchase issue of 1920. At the same time, the Metropolitan Utilities District has been able to increase the value of the plants to $27,987,943, after deducting depreciation.

During the 30-year period, the city has enjoyed substantial reductions in both gas and water rates, according to Walter S. Byrne, general manager of the Metropolitan Utilities District.

Sewer Service Charges

(*Continued from page 99*)

New Castle County

North Delaware Interceptor, 15" to 36"—19,000 l. ft.
1 Pumping station, 7.5 mgd
1 Pumping station, 6.0 mgd
Force main 16"—4,150 l. ft.
Shellpot Interceptor, 15" to 21"—21,000 l. ft.
North Christina Interceptor, 21" to 27"—18,300 l. ft.
1 Pumping station, 9.0 mgd
1 Pumping station, 4.0 mgd
Force main, 16"—6,000 l. ft.
South Christina Interceptor, 15" to 27"—21,100 l. ft.
1 Pumping station, 4.0 mgd
Force main, 14"—3,000 l. ft.
South Delaware Interceptor, 18" to 27"—27,000 l. ft.
1 Pumping station, 4.0 mgd
Force main, 14"—1,100 l. ft.
Westover Interceptor, 10" to 12"—3,220 l. ft.

The consulting engineers for both the city and county program are Whitman Requardt and Associates of Baltimore, Md., with Mr. Roy H. Ritter, partner, as Project Engineer. The engineering work was carried out under two separate and distinct assignments—one for the Street and Sewer Department of Wilmington under Edwin F. Koester, Chief Engineer, and one for the Levy Court of New Castle County under John I. Cahalan, County Engineer. In both cases, the assignment included a detailed method of financing. It has been considered fortunate that it was possible, by having a concurrent engineering study, to consider the problems on a regional or drainage-area basis, rather than having to stop at political or man-made boundaries.

ROADMASTER
Street Sweeper
WIRE

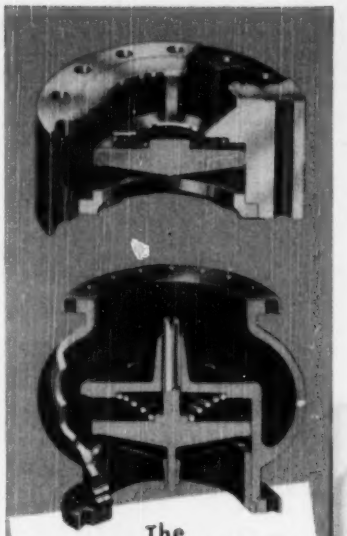
High Scleroscope Rating
Uniform temper.

Specially processed for high fatigue — against breakage. Long wearing. Conveniently cut and delivered in 100 and 200 lb. boxes. Prompt shipment from stock of all standard sizes.

This gutter broom wire will prove an economy in your service.

"MORE MILES PER BRUSH"

JOHNSON
Steel & Wire Co., Inc.
Worcester 1, Massachusetts
New York Akron Chicago Detroit
Los Angeles Toronto



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WILLIAMS-HAGER
flanged
Silent check
VALVE

• durable
• compact
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• low friction

the economical
practical solution
to costly
WATER HAMMER

With its renewable disc and seat, non-wearing conical spring, the Williams-Hager Valve offers dependable protection in any position—horizontal, vertical with flow upward, vertical with flow downward and angular—Easily installed or reseated without special tools, it is available in standard pipe sizes from 1" to 20".

Write for Bulletin WH 100

THE WILLIAMS GAUGE CO.
Pump Valves . . . Water Gauges . . . Gauge Cocks . . . Steam Traps . . . Pump Governors . . . Feed Water Regulators . . . Water Columns
3013 PENNSYLVANIA AVE. • PITTSBURGH (33), PA.

American Vacuum Leaf Loader
Solves your leaf or clean-up problem

Write for leaflet
LEAF LOADER DIVISION
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Cities Grow, Too...

Like a growing boy, most cities today are "busting out at the seams"

TAKE a look at your city! Industry needs room to grow. Residential areas are swollen with new population. Yesterday's roads don't fit today's traffic and transport problems.

The old town needs a new suit of clothes—*up-to-date maps* to provide city planners with *up-to-the-minute information*. But the costs of collecting new map facts by conventional methods are high. No city can afford to wait years for maps needed *now*.

Aero Service and its highly skilled engineers can meet your mapping needs with speed, accuracy, and economy. Our aerial mapping methods deliver reliable topographic maps in a matter of months—*not years*—at less than half the cost of ground surveys. Your city planning can move ahead swiftly—at the lowest possible cost to the taxpayer.

Whatever your map needs—for new industrial plans, traffic control, or overall redevelopment—AERO's 31 years' photogrammetric experience will provide your city with maps that meet every demand of engineering accuracy. Write Aero Service today.

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News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

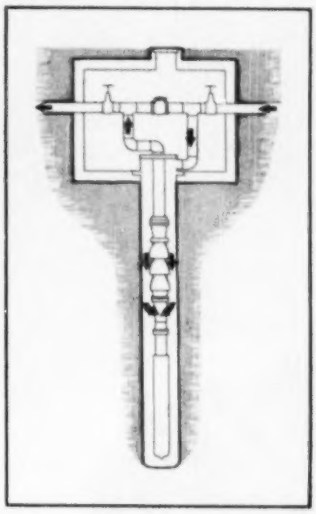
Submersible Pumps Urged as Civilian Defense Step

Submersible pumps stack up as the answer to the civilian defense program insofar as water supply and pumping stations are concerned, according to W. N. Beadle, vice president, Byron Jackson Co., P. O. Box 2017, Terminal Annex, Los Angeles 54, Calif.

W. N. Beadle

Enemy action can damage either the electric power lines or the pumps and motors themselves, Mr. Beadle points out. However a damaged electric power line can be repaired in a matter of a few hours. But special precautions must be taken for the conventional above-ground pumping station equipment. If a surface electric motor is demolished, one faces a major job to get it going again. Not only is the electric motor destroyed, but also the cast-iron head supporting the motor usually injured. Replacement often is difficult. Also, below the head are shafting, tubing, and bearings, that may require replacing.

In contrast, the submersible pump and motor is safely below ground. Even if a direct hit should strike the small surface area, it would only sever the supporting cable and drop the pump and motor to the bottom of the shaft, and its rate of drop in water would be slow enough so that it would not be damaged. Mr. Beadle estimates that a "fishing" job to recover the pump and motor would require only a few hours. Repair of the power cable is comparatively simple, he explained.



Truck Highways Inadequate Mack Truck President Warns

America's traffic crisis will continue as long as we keep building motor vehicles faster than we build roads, E. D. Bransome, president of Mack Trucks, Inc., 350 Fifth Ave., New York 1, N. Y., declared recently.

Blackstone Photo

E. D. Bransome

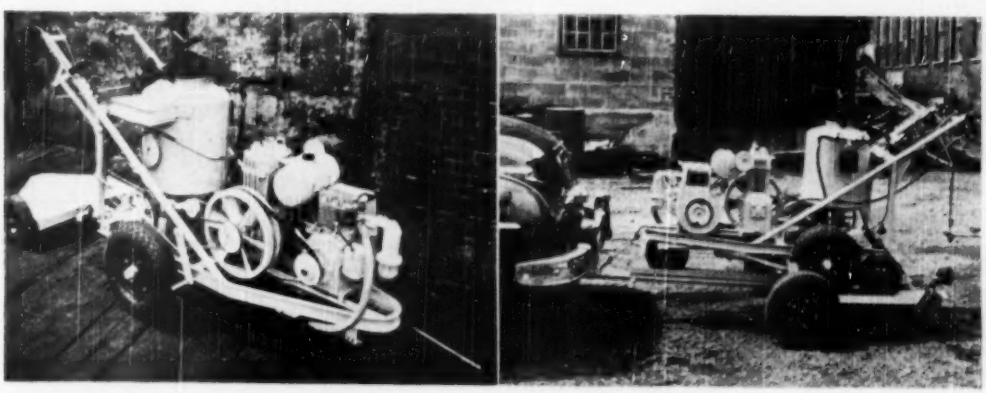
Mr. Bransome called attention to the recent testimony before a Senate committee by Thomas H. MacDonald, Chief of the Bureau of Public Roads, Department of Commerce. Commissioner MacDonald told the Senate Public Works Subcommittee which is holding hearings on the federal aid road bill that only about 10% of the annual cost of new vehicles is being spent on maintenance and construction of highways.

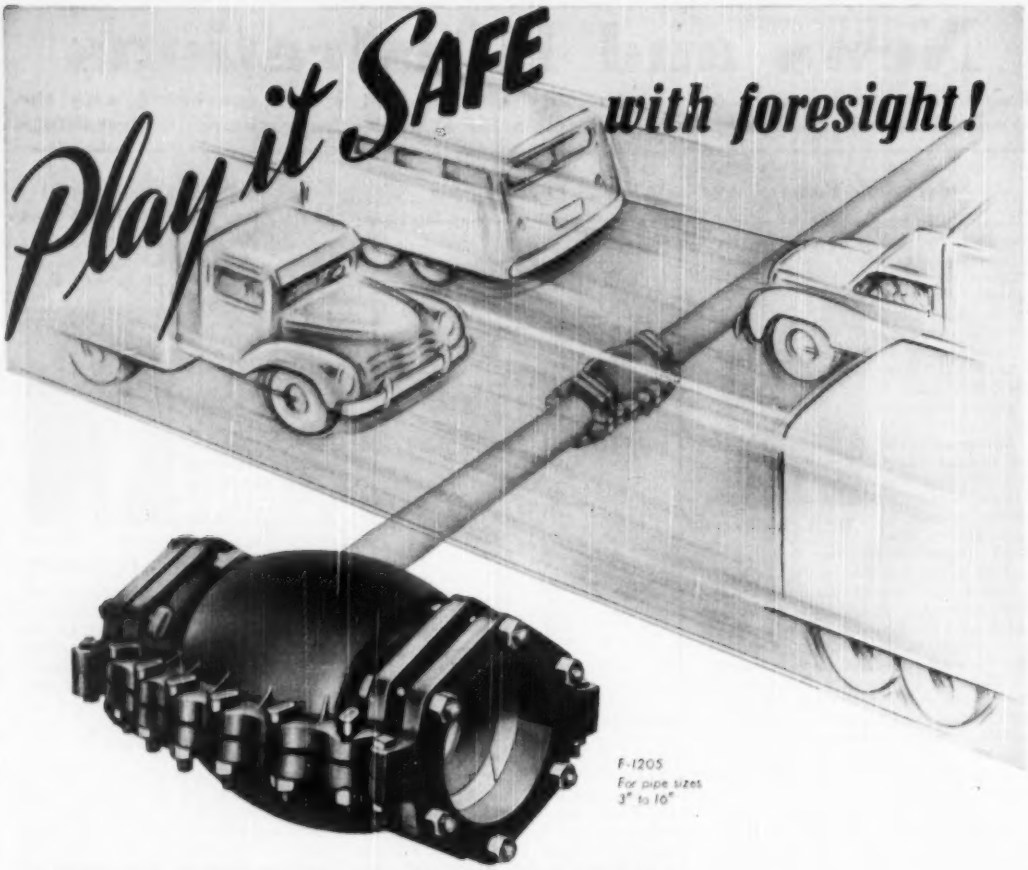
New Statler Hotels

The Hotels Statler Co. will build an 800-room hotel in downtown Dallas, Texas, as soon as architects' plans are completed. The Statler Co. recently started construction of its 1,275-room hotel and adjoining office building in Los Angeles, Calif.

New Traffic Line Marking Machine and Carry-Trailer

Traffic line marking machines or stripers are of keen practical interest to nearly every municipal, county and state highway department in the country. Here is the Wald Reflecto-Liner' for marking reflective center lines by vertical spraying. Air is furnished by a 12½-cfm compressor and a 6-hp air-cooled engine. The striper is pictured here (left) ready for work and (right) mounted on the new "Carry-Liner" trailer, ready to move for home or the next operation. The whole outfit is offered by Prismo Safety Corp., Huntingdon, Pa.





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For pipe sizes
3" to 16"

Reinforce all joints subject to vibration with

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Mechanical Joint BELL SPLIT SLEEVES

When ponderous trucks roar and rumble by, even our finest highways tremble with vibration . . . and so does the water pipe buried below! That's why it's best to play it safe: don't wait for a break; have the foresight to install Clow Mechanical Joint Bell Split Sleeves as *original equipment* wherever the pipe must pass under highway truck routes or under railroad tracks. Specify them for marshland or under water, too—in fact, everywhere that pipe is not readily accessible in case of emergency. They're easy to install . . . no lead, no jute, no caulking!

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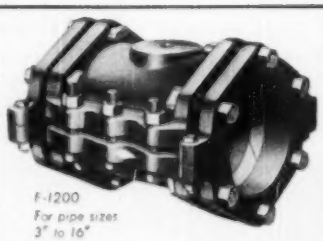

F-1200
For pipe sizes
3" to 16"

Use these F-1200 Clow Mechanical Joint Straight Split Sleeves for permanent repairs to pipe barrels. 12" and smaller sizes will repair lengthwise breaks up to 8 inches; 14" and 16" sizes, up to 17 inches.

JAMES B. CLOW & SONS

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and their National Cast Iron Pipe Division, Birmingham, Alabama; subsidiaries Eddy Valve Company, Waterford, N.Y.; Iowa Valve Company, Oskaloosa, Iowa

N. Y. Buses Will Convert to War-Time Ambulances

Buses designed for quick conversion to ambulance use are an important civil defense need in every city in America, according to Col. Sidney H. Bingham, chairman of the New York City Board of Transportation, and chairman of the joint New York City and New York State Civilian Defense Transportation Committee.

"If and when bombs fall," the Colonel points out, "one of the first needs of any city will be literally hundreds of additional ambulances to carry civilian wounded to hospital centers."

Each of the 400 C-50 Mack diesel 50-passenger buses designed by Col. Bingham in cooperation with engineers of Mack Trucks, Inc., 350 Fifth Ave., New York 1, N. Y. can be converted to ambulance use in a few minutes, without technical help, while the bus is on its route. Doors are wide enough for stretchers to pass through, and plans have been drawn for stretcher holders inside the bus to accommodate two tiers of stretchers without removing the seats. Civilan defense plans call for 900 convertible buses.

The principles developed by Col. Bingham for bus-ambulance conversion are based on his war-time experience in London where the value of converting buses to ambulances was well demonstrated.

Father of Parking Meter Statistics Joins Dual

The Dual Parking Meter Company, Canton 2, Ohio, a subsidiary of the Union Metal Manufacturing Company, announces that Deane Dana is now associated with Dual.

Deane Dana

For many years Mr. Dana was Vice President and General Manager of Vehicular Parking Ltd. But for municipal officials and all who study, investigate and deal with parking meters, he has a special niche. It is he who has been responsible for the parking-meter statistics which for ten years have been recognized as the authoritative figures of the industry and of metered parking.

In his present connection it is predicted that *"Parking Meters In The United States"* will not only continue to be the standard of statistical completeness and accuracy but will be issued with timely promptness and universal availability. Accuracy, impartiality and completeness have been and are the ideal of this detailed job of compilation.

The NEW SKYLINE "90" LOADER

FOR SNOW, LEAVES, DIRT, TRASH, SAND AND GRAVEL

SCOOPS · LOADS · DIGS · DOZES . .

Here's a fast-moving piece of equipment which will play a major part in keeping your city clean all year around. In the winter it scoops snow and ice, scatters sand on slick streets. In the spring you'll find the Skyline Loader scooping dirt and leaves from gutter, moving trash, loading sand and gravel for resurfacing roads, even handling garbage. You'll find your new Skyline "90" Loader the best investment your city ever made.

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Long Life
EMBOSSED REFLECTORIZED TRAFFIC SIGNS

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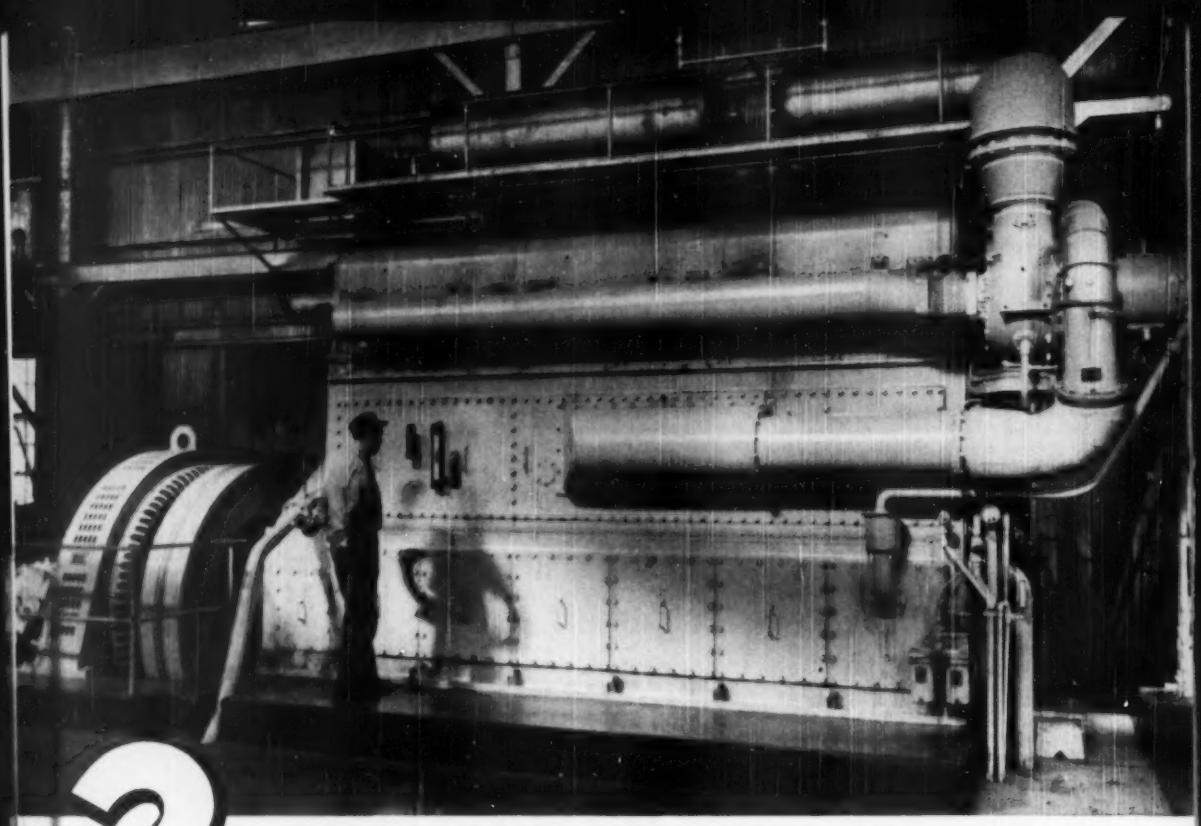


3rd NORDBERG

for Miami plant of ARIZONA EDISON CO., INC.

. . . purchased as a result of the excellent performance of their first two engines

EARLY in 1948, the Arizona Edison Co., Inc. installed this Nordberg Duafuel Diesel Engine in their Miami, Arizona, plant . . . a 6-cylinder, 4-cycle supercharged unit having a sea level rating of 1220 hp at 327 rpm, driving an 800 kw AC generator. In 1949, a second Nordberg Duafuel Engine was installed . . . an 8-cylinder 1750 hp supercharged unit, driving a 1235 kw AC generator.

These first two Nordberg Duafuel Engines were operated "around the clock", and, because of their excellent performance, a third Nordberg Duafuel unit has now been purchased . . . identical to the second engine installed.

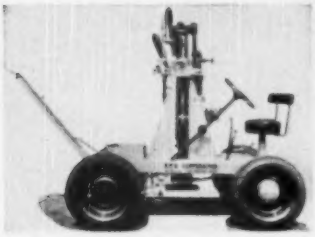
Here, then, is *repeat order proof* that Nordberg Duafuel Diesels deliver the kind of dependable performance you need for central station service. Write for details on Nordberg engines to meet your needs . . . sizes from 10 to 9600 hp.

NORDBERG MFG. CO., Milwaukee 7, Wis.

P650

BUSCH-SULZER A DIVISION OF NORDBERG

NORDBERG DIESEL ENGINES



New Mighty Midget Breaker

The new Model B Mighty Midget pavement breaker, manufactured by the R. P. B. Corp., 2751 E. 11th St., Los Angeles 23, Calif., is automatically controlled. The manufacturer reports that this new feature practically eliminates all of the upsurge of the piston against the top head, and 95% of the overreach of the bottom head.

The Model B has several improvements over the one-wheel-drive model, being equipped with a 200-pound head which gives a more effective blow, especially in the cutting of asphalt. It is equipped with a conventional automobile rear end, drives on both wheels, and has an automatic attachment, with the auxiliary cylinder standing parallel with the main cylider.

The new machine requires little attention, and will do considerably more work than the original machine, according to company spokesmen. The new tools are inter-changeable with either old or new machine. Over-all length is 87 inches, width is 65 inches, and height is 78 inches (with hammer in lowered position).

Neptune Meter Co. Appoints

Mr. Wentworth Smith was recently appointed assistant general sales manager of the Neptune Meter Co., 50 W. 50th St., New York 20, manufacturers of Trident & Lambert liquid meters, Red Seal petroleum meters and dispensing pumps.

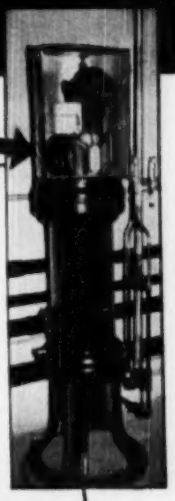
Wentworth Smith

Mr. Smith, who has been connected with the company for a number of years replaced James H. Judge, who recently resigned.

Hubbard Builds New Plant

A new $150,000 plant building for the manufacture of aluminum pole line hardware, specialties, and street lighting equipment will be completed this month, for Hubbard and Co., Pittsburgh, Pa., as an addition to their present plant at 63rd and Butler Streets, Lawrenceville, Pa.

IN CONTINUOUS OPERATION SINCE 1913 WITH ONLY ONE OVERHAUL!



City of Fargo
WATER WORKS DEPARTMENT
ORA C. ATLUPPE, Supt.
FARGO N. DAK.
September 14, 1949

Simplex Valve & Meter Company
6899 Upland Streets
Philadelphia 42, Pennsylvania

Attention: Mr. E. A. McQuade

Gentlemen:

Our oldest Simplex Venturi Meter Serial No. 18-08-286-GD, as near as we can learn, was installed in the pumping plant here at Fargo, North Dakota, in 1913 to measure the flow of water going out to the city. This meter is still in continuous service having been overhauled in about 1929. It still has the original clock drive mechanism which came with it.

We have three other Simplex Meters in use. Serial No. 16-86-916-GK was installed in 1922; Serial No. 16-178-2213-GK was installed in 1936. The clock mechanism in these meters has been changed to electric clocks except the oldest one for which a new clock has been ordered.

All of these meters are in continuous operation and require almost no attention whatever except to check accuracy and make slight adjustments once in two years. This work can be done by our own men.

We certainly feel that our past experience with Simplex Meters qualifies us to recommend them to anybody, anwhere.

Very truly yours,

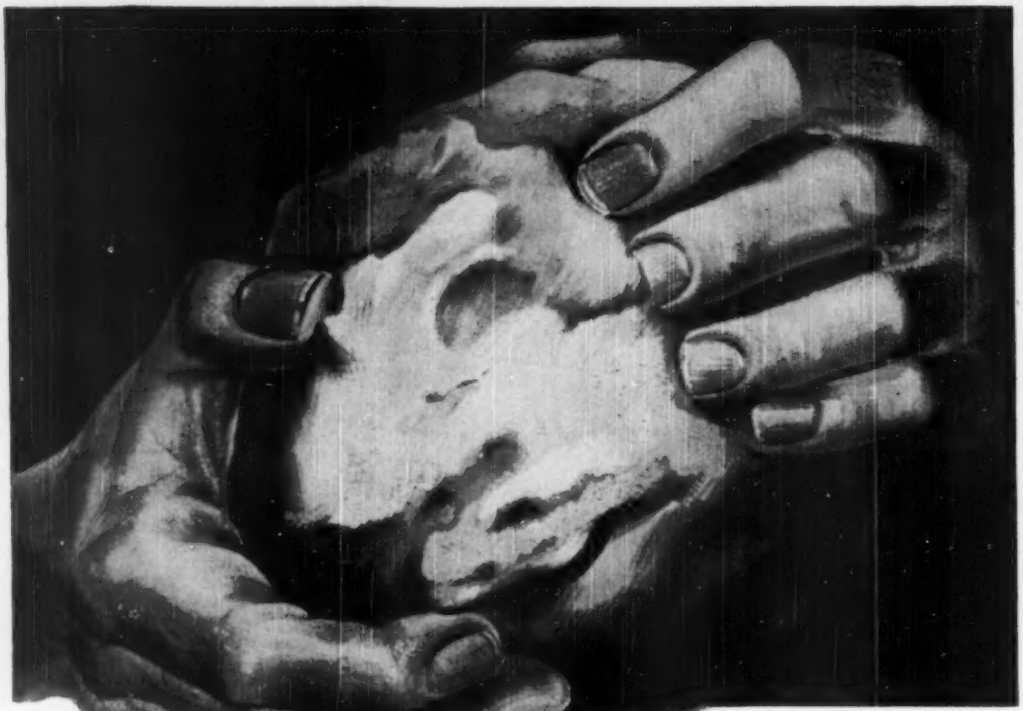
CITY OF FARGO WATER DEPARTMENT
H. H. Behlmer
H. H. Behlmer,
Asst. Supt. Water Department

IT'S SIMPLEX IT'S ACCURATE

When you purchase Simplex equipment, of whatever type, you will find the same features of ruggedness, long life, low maintenance cost, and accuracy as did the user of the meters at Fargo, North Dakota.

For full information, write to Simplex Valve & Meter Company, Dept. 9, 6789 Upland Street, Philadelphia 42, Pa.

SIMPLEX
VALVE AND METER COMPANY



CLAY...

RAW STUFF OF THE *Only*

CORROSION-RESISTANT PIPE

Vitrified Clay Pipe is the only pipe offering complete protection against acids, alkalies, and chemicals. Proof? *There is no instance on record where a single length of Clay Pipe has ever worn out due to the action of a disintegrating agent.* This explains why 89% of America's sewerage lines are made of Vitrified Clay Pipe. On any sewerage or drainage project, be *sure* by specifying Vitrified Clay.

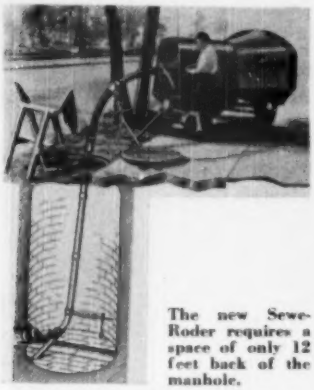
NATIONAL CLAY PIPE MANUFACTURERS, INC.

1105 Huntington Bank Bldg., Columbus 15, Ohio
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
206 Connally Bldg., Atlanta 3, Ga.

SPECIFY *Vitrified* **CLAY PIPE**

CLAY PIPE FITTINGS | **PERFORATED CLAY PIPE** | **STANDARD-STRENGTH CLAY PIPE**

C-150-3



The new SeweRoder requires a space of only 12 feet back of the manhole.

Clean Sewers Mechanically

The SeweRoder saves money by rodding sewers mechanically, according to the manufacturer, the Flexible Sewer-Rod Equipment Co., 9059 Venice Blvd., Los Angeles 34, Calif.

The new machine rotates special flexible steel rods, pushes the rods, pulls the rods, and tugs back loads, requiring only one man and a helper for operation. It can be operated at speeds of up to 100 feet per minute. An accurate footage meter makes it possible to keep track of the location of the tool in the line at all times. It is equipped with towing tongue and is easily transportable to and from jobs and between manholes. Rods reel in and out of the container automatically.

Eureka Fire Hose Company Celebrates 75th Anniversary

An unsuccessful hat manufacturing operation in 1873 led to the organization of the Eureka Fire Hose Co., 191 Hudson St., New York City, a division of the United States Rubber Co. since 1906. Eureka developed circular woven seamless fire hose fabric as a result of the depression following the Civil War, when J. Van D. Reed, then manufacturing hats, lost all of his company's assets except one loom.

Looking for new uses for the loom, Mr. Reed developed the seamless, woven fabric, and in 1875, he organized the Eureka Fire Hose Company.

Now celebrating its 75th annivesary, Eureka manufactures a full line of fire fighting equipment, including couplings, nozzles, and other basic accessories, in addition to circular woven fire hose fabric.

Du Bois Forms New Sales Engineering Company

F. W. (Duke) Du Bois, founder and head of the Du Bois-Webb sales-engineering firm, Detroit, has announced his retirement from that organization as of July 1, 1950.

F. W. Du Bois

Mr. Du Bois will head the new F. W. Du Bois Co., 15760 James Couzens Highway, Detroit, Mich. The new company will specialize in sales engineering of industrial and municipal water purification and waste treatment, and will represent the Walker Process Equipment Co., Aurora, Ill., the Simplex Valve & Meter Co., Philadelphia, Pa., and the Ball Valve Co., Beverly Hills, Calif.

New Flex-O-Lite Plant For Glass Bead Manufacture

The Flex-O-Lite Mfg. Corp., 3130 Chouteau St., St. Louis, Mo., is erecting a new $150,000 manufacturing plant and office building in St. Louis County, to be completed October 1, according to an announcement made by Mr. G. M. Rizer, president.

The company manufactures reflective glass beads widely used for reflectorizing painted highway traffic signs, advertising signs, motion picture screens, and airport runway delineators.

New G-E Appointments

J. David Wright has been appointed assistant manager of the General Electric Co.'s industry division at Schenectady, N. Y. Mr. Wright was formerly manager of the company's industrial engineering division.

Frederic M. Roberts, former assistant manager of the industrial engineering division, has been appointed manager.

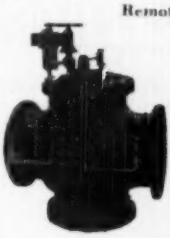
Leonid A. Umansky, former assistant manager, has been named manager of engineering of the industrial engineering division.

ROSS AUTOMATIC VALVES

Altitude Valves
For control of elevation and heads into and out of tanks, basins and reservoirs, hydraulic control.
1. Single acting.
2. Double acting.
3. Combination assembly for three or more automatic operations.
4. Can be equipped with electric and manual controls.

Combination Valve
This valve will permit flow in one or both directions acting as
1. Pressure Reducing and Relief Valve.
2. Pressure Reducing and Altitude Valve.
3. Relief and Altitude Valve.

Remote Control Valve
Electric remote control — solenoid or motor can be furnished. Adapted for use as primary or secondary control on any of the hydraulically controlled valves.



Also—Pressure-Reducing Valves, Relief and Surge Valves Back-Pressure Valves, Etc.

Established 1879
ROSS VALVE MFG. CO.
Incorporated
P.O. BOX 596, TROY, N.Y.

Air Curtain Guide Plates

For Perfect Traffic Lines:

AIR CURTAINS, basic feature of all Kelly-Creswell Equipment, make possible the application of clean-cut, attractive lines without coming in contact with the surface.

Special striping guns by DeVilbiss, air actuated traction and pressure-cleaning equipment also feature K-C equipment. These are the reasons why more Highway-Zone-marking material is applied through K-C equipment than through any other make.

TRUCK-MOUNTED AND PORTABLE EQUIPMENT AVAILABLE.

There is a Kelly-Creswell Model that will solve your zone-marking problems.

KELLY-CRESWELL CO., Xenia, Ohio

Another Product Pioneered by Bitumuls

Laykold FIBRECOAT

The Mineral-Armored Asphalt

TWICE the life at HALF the price

This is a roof in Alaska — not an air-field — one of the largest roofs in the world. Sprayed with FIBRECOAT — in record time and in adverse weather.

FIBRECOAT *Protects*—

METAL—

ROOFS—

MASONRY

FIBRECOAT protects refinery tanks and insulation — endures over a wide range of temperature.

FIBRECOAT protects steel and masonry — outlasts red lead and oil — costs less.

ENDURES — over 1200 hours in Standard Weatherometer Tests, without breakdown. Passes Navy Salt Spray Cabinet Test.

SAFE — Spray or Brush COLD. Bonds to damp or dry surfaces. No fire hazard to job or workmen.

COLORS — Attractive and durable Green, Red or Black.

ACCEPTED — Over 6 million sq. ft. covered last year alone — on roofs, tanks, bridges, buildings, pipe, etc.

ECONOMY — Cost averages less than $1.00 per gallon. Sprays 5 to 10,000 sq. ft. per man per day.

A better coat with FIBRECOAT

In the West

STANCAL ASPHALT & BITUMULS COMPANY

200 BUSH STREET · SAN FRANCISCO 4, CALIF.

Los Angeles 14, Calif. · Oakland 1, Calif. · Portland 7, Ore. · Tucson, Ariz.

In the East

AMERICAN BITUMULS COMPANY

200 BUSH STREET · SAN FRANCISCO 4, CALIF.

Washington 6, D. C. · Baltimore 3, Md. · Perth Amboy, N. J.
Columbus 15, O. · St. Louis 17, Mo. · Baton Rouge 2, La.
E. Providence 14, R. I. · San Juan 23, P. R. · Mobile, Ala.

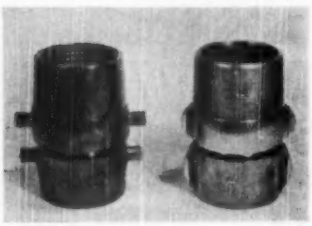
Get this folder— a short, pleasant story of dollars saved for YOU.

R. F. Orth New President of Water, Sewage Works Assoc.

The Water & Sewage Works Manufacturers' Association has announced the election of new officers at a recent meeting in Philadelphia. Robert F. Orth, manager of the Johns-Manville Transite asbestos-cement pipe department, was elected president and will take office January 1, 1951. Mr. Orth was formerly staff manager of the J-M Transite pipe department for the St. Louis district, and staff manager of J-M's public utility and electrical departments at the company's headquarters in New York.

R. F. Orth

Other Association Officers elected were: Vice president, E. M. Jones, Vice President and General Manager of Simplex Valve & Meter Co., Philadelphia, Pa.; Treasurer, E. J. Buttenheim, President of THE AMERICAN CITY, New York City; Acting Secretary-Manager, Miss Dorothy E. Dimmers, New York City.



New Fire Hose Couplings

A new line of fire hose couplings and accessories is being manufactured by the Hose Accessories Co., 17th at Lehigh, Philadelphia 32, Pa. The new couplings include satin finish pin lug and Glider lug couplings in a complete range of sizes and types for chemical, linen, mill and fire department hose. Rounded lugs glide over curbs, ladder rungs, stairs, and other obstructions.

Le-Hi couplings are available in three types, with long handles on both male and female, pin lugs on male and female, and long handles on the female, pin lugs on the male. Also included are long spanner hole couplings Le-Hi navy type hose couplings, and snap couplings.

For copies of Le-Hi Bulletin No. 7, which describes the new couplings and accessories, and which contains thread data on all standard U. S. hose coupling threads, write to the company at address above.

Gorman-Rupp Forms Small Pump Group

The Gorman-Rupp Co., 343 North Bowman St., Mansfield, Ohio, recently anounced the establishment of a new department within the company, specializing in the development of small centrifugal pumps.

Edward M. Smith, formerly Chief Engineer of the pump division of the Barnes Mfg. Co., has been appointed hydraulic engineer for the new department.

Horace M. Montgomery, former Barnes new products engineer, has been appointed project engineer.

E. M. Smith H. M. Montgomery

FOR MORE THAN 80 YEARS

HAYS

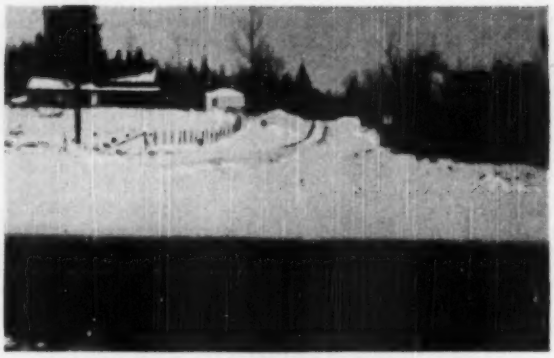
Prices Consistent With Quality

Water Service Products

Hays Manufacturing Company

Erie, Pennsylvania

FEWER ACCIDENTS!
EASIER HANDLING!
LESS WORK!
with
CAYUGA ROCK SALT
at
50% LESS COST



Contrasting road treatments in New Hampshire
Above—(in background) sanded, snow-covered, slippery, dangerous.
Below—(in foreground) treated with rock salt; road bare, dry.

THIS IS THE CAYUGA ROCK SALT SAFE ROAD TREATMENT:

Get the salt on the road early in the storm—or right after plowing, before the remaining snow has had time to become compact and frozen. Early salting keeps the base snow mealy, and often gives bare road plowing on the first trip. The latter method permits the rock salt to penetrate the snow layer left by the plow, and forms a brine film on the road which seeps towards the shoulders, so that a 2½-foot center application actually frees most of the entire traveled portion.

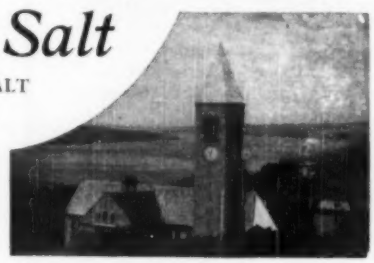
Cayuga Rock Salt is spread so as to deposit about one-quarter pound per square yard, or 300 pounds per mile, in a lane 2½ feet wide or more down the center of the highway (depending upon the crown). No highway department that has once used 100% Cayuga Rock Salt for winter road maintenance has ever gone back to sand or cinder treatment.

Write for Booklet.

Cayuga Rock Salt

COMMERCIAL GRADE OF SALT
SIZES FOR ALL PURPOSES
BULK OR BAGS

Ice and Snow Control
Chemical Processes
Production of Pure Brine
Many Other Uses



NATURE'S PURE PRODUCT—Mined 2000 Feet Below Historic Cayuga Lake

CAYUGA ROCK SALT CO., INC., MYERS, N. Y.

SIZES FOR ALL PURPOSES — *Call Nearest Distributor* — **BULK OR BAGS**

W. H. SHURTLEFF CO.
2½ Union Wharf,
Portland 2, Maine
Telephone 2-7463
also
Dutton Street, Bangor, Maine
Telephone 7900

BARNES SALT COMPANY
Corner Benefit and India Streets
Providence, Rhode Island
Telephone Dexter 1-7270

SOUTHERN SALT COMPANY
222 West Main Street,
Norfolk, Va.
Telephone 2-4638

THE CHEMICAL CORPORATION
34 Waltham Ave., Springfield 5, Mass.
Telephone 9-5001
Warehouses:
Pittsfield, Mass.—Telephone 2-0718
Boston, Mass.—30 Boylston St., Telephone Liberty 2-7271
Branford, Conn.—Telephone 6-3223
Concord, N. H.—Telephone 2394
New Haven, Conn.—Telephone 8-3827

CHAS. SCHAEFER & SON, INC.
701 Meserole Street, Brooklyn 6, N. Y.
Telephone Hyacinth 7-2100

CHAS. SCHAEFER & SON of N. J., Inc.
Townley, N. J.
P. O. Box 226, Elizabeth, N. J.
Telephone Elizabeth 2-7610

KERR SALT COMPANY
919 North Delaware Ave.,
Philadelphia 23, Pa.
Telephone Market 7-4694

KERR SALT COMPANY
901 South Wolfe Street,
Baltimore 31, Md.
Telephone Wolfe 0282

E. J. FEDIGAN, INC.
Anderson & Isabella Streets
N. S. Pittsburgh 12, Pa.
Telephone Cedar 1-0766

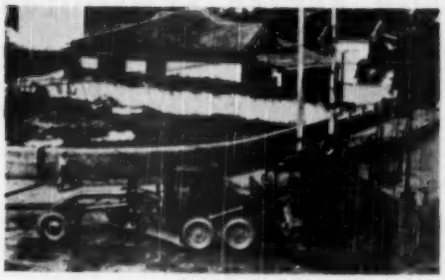
YOUNGSTOWN BUILDING MATERIAL & FUEL CO.
1305 Logan Avenue
Youngstown 4, Ohio
Telephone 3-4191

ORRECHT SALT COMPANY
1325 Key Hway, Baltimore, Md.
Telephone Saratoga 2570

INDUSTRIAL SALT SERVICE
A Division of Highway Materials Co., Inc., Groton, N. Y.
Telephone Groton 154

A. P. NILSON, Sales Engineer
12 Mercer Ave., Chatham, N. J.
Telephone Chatham 4-7608

Branch Warehouses:
Congers, Rockland Co., N. Y.
Niagara Falls, N. Y. (Lehigh Valley R.R. Co. Roundhouse)



Rio Repairs Flood Damage

Rio Street after the flood. An Allis-Chalmers motor grader clears away debris.

When torrential rain recently flashed through Rio de Janeiro, it took 17 lives and inflicted damage of catastrophic proportions in less than 24 hours. The city-owned Allis-Chalmers motor grader manufactured by Allis-Chalmers Tractor Div., Milwaukee, Wis., was rushed into service to help repair the confused transportation system of a paralyzed community.

Scores of homes were undermined and demolished by floods which accompanied the downpour. As gushing water reached the battery level of a metropolitan bus, flashing flames enveloped the vehicle and killed 13 passengers. Rising waters prevented fire trucks from getting close enough to offer appreciable assistance.

According to the Rio weather station more than 5½ inches of rain fell in less than 24 hours. Radio appeals for civilian volunteers to help clean up the mud-covered streets met an enthusiastic response.

Asphalt Institute Appointment

Walter F. Winters, formerly special projects engineer at the Asphalt Institute's Denver, Colo., office, has been appointed Chief Engineer of the Institute, with headquarters at 801 Second Ave., New York 17, N. Y.

Mr. Winters will take over work formerly handled by Bernard Gray, who combined the duties of president and chief engineer. Mr. Gray will continue to be president of the Institute, with scope of activities increased on that level.

YOU CAN BE SURE

of LOWEST COST ICE and SNOW CONTROL IF you use a stainless steel "Scotchman" and straight rock salt (no sand or cinders).

The "Scotchman" method is far CHEAPER than sand or cinders. It is eight times FASTER. It keeps drainage open and provides clean BARE, SAFE pavements.

You SAVE when you SALT with a "Scotchman"

CONTROL of direction, width, and rate of speed.

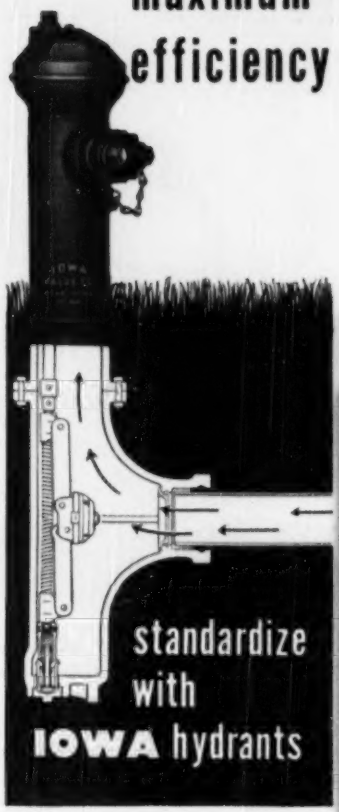
WEATHER-PROOFED ENGINE ● ELECTRIC STARTER

BAGGED or BULK SALT ● USE on ANY TRUCK or PICKUP

Literature? Demonstration?

TARRANT MFG., CO.
EAST AVE., SARATOGA SPRINGS, N. Y.

for maximum efficiency



Two piece operating nut with special adjustment screw solves the problems of expansion and contraction . . . makes Iowa hydrants easy to operate at all times.

Positive operating mechanical drain valve can be removed along with all other working parts through top of hydrant without special tools.

Fixed position of valve arms makes leaking impossible should standpipe be broken.

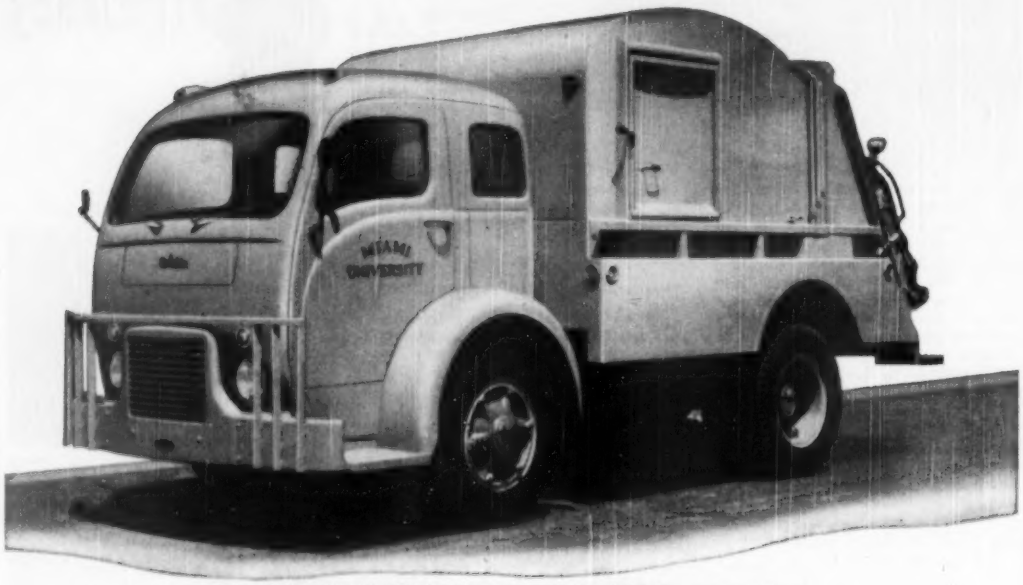
Unrestricted water flow gives full pressure at extreme low loss of head.

Built to conform to the latest A.W.W.A. specifications.

IOWA
VALVE COMPANY
201-299 N. Talman Avenue • Chicago 80, Illinois

A subsidiary of James B. Clow & Sons

MODERNIZE FOR BETTER SCHEDULES AND EFFICIENT SERVICE WITH THE NEW WHITE 3000



This White Model 3018 with 9 cu. yd. Load Packer saves refuse collection time on the campus of Miami University, Oxford, Ohio.

IT'S THE PERFECT ANSWER to your refuse collection problems! That is the report from across the country . . . wherever this great *new* White 3000 has been put into this specialized service.

The *new* White 3000 saves maneuvering time . . . saves driver time . . . saves route time because it speeds every phase of collection service.

This *new* White is miles ahead because it sets a new standard in truck efficiency, ideal for modern collection methods and for economical service.

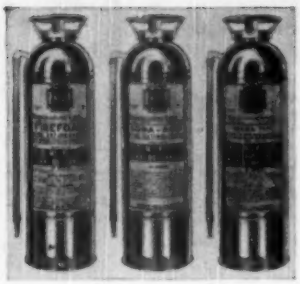
Its functional design . . . its new weight distribution principle . . . its revolutionary approach to reducing truck maintenance costs—these are all exclusive advantages that make the *new* White 3000 a profitable investment that pays dividends for years.

Your White Representative will be glad to demonstrate the advantages of the *new* White 3000 as they apply to your exact needs.

THE WHITE MOTOR COMPANY
Cleveland 1, Ohio, U. S. A.

Tips its cab to service

FOR MORE THAN 50 YEARS THE GREATEST NAME IN TRUCKS



Stronger, Lighter Extinguishers For Class A and B Fires

Stainless steel construction provides a revolutionary improvement in the three new Alfco 2½-gallon fire extinguishers, according to the manufacturer, American-LaFrance-Foamite Corp., Elmira, N. Y. The new extinguishers are twice as strong as the old style fabricated copper units and about 50% lighter in weight without the charge.

The new models include a chemical Foamite unit for Class A and B fires; a chemical solution (soda-acid) for Class A fires, and a plain water type, discharged by carbon dioxide gas, also for Class A fires.

Each new unit has a newly conceived operating instructions label in a different color for quick identification; label is a non-removable part of the extinguisher shell. The new extinguishers are of welded construction, elbow and collar silver brazed, no lead solder banks, no acid fluxes; corrosion-resistant inside and out.

Free literature is available upon request to the company.

New Foolproof Soap-Dispenser Saves Money

Engineered with a unique baffle plate at the top, the new Handisan dispenser makes it impossible for users to force open the lid in order to scoop out handfuls of soap compound.

Designed for use with Turco Handisan, a mild, white, granular hand-washing compound, the Turco dispenser combines beauty with simple, foolproof dispensing action. Smart and modern in appearance, the device can be quickly refilled and maintained.

Further information may be obtained by writing to Turco Products, Inc., at 6135 S. Central Ave., Los Angeles 1, Calif., or by inquiring of the Turco service man in your city.

William H. Staring Dies

William H. Staring, former President, later Chairman of the Board of the Automatic Voting Machine Corp., Jamestown 55, N. Y., died on July 21.

During his many years with the company, Mr. Staring was largely responsible for the increase in the company's sales and expansion.

FOR DEPENDABLE FLOW CONTROL...

Specify KENNEDY Iron-Body Double-Disc Gate Valves for Water Service

Check your Valve requirements against this handy chart; NOTE: 3" thru 48" are all A. W. W. A. Standard

TYPES OF VALVES AVAILABLE—Non-rising Stem and Outside Screw & Yoke

Connections Available	2"—6"	8"—14"	16"—24"	30"—60"
Bell Ends	Yes	Yes	Yes	Yes
Screwed	Yes	Yes	No	No
Flanged	Yes	Yes	Yes	Yes
Mechanical Joint	Yes	Yes	No	No
Universal	Yes	Yes	Yes	30" only
Transite	Yes	Yes	Yes	30"-36" only
Spigot Ends	Yes	Yes	Yes	Yes
Combination Ends	Yes	Yes	Yes	Yes
Accessories Available	**2"—6"**	**8"—14"**	**16"—24"**	**30"—60"**
Rollers for Horizontal Operation			Bronze on bronze track	Bronze on bronze track
Stem and Stem Nut	Manganese Bronze 60,000 lb. Tensile strength	Manganese Bronze 60,000 lb. Tensile strength	Manganese Bronze 60,000 lb. Tensile strength	Manganese Bronze 80,000 lb. Tensile strength
By-Pass			available	available
Spur Gears			available	available
Bevel Gears			available	Standard
Gear Cases			available	available
Electrical Control	available	available	available	available
Cylinder Control	available	available	available	available
Square Bottom		available	available	available
Indicator	available	available	available	available

WRITE FOR BULLETIN 59

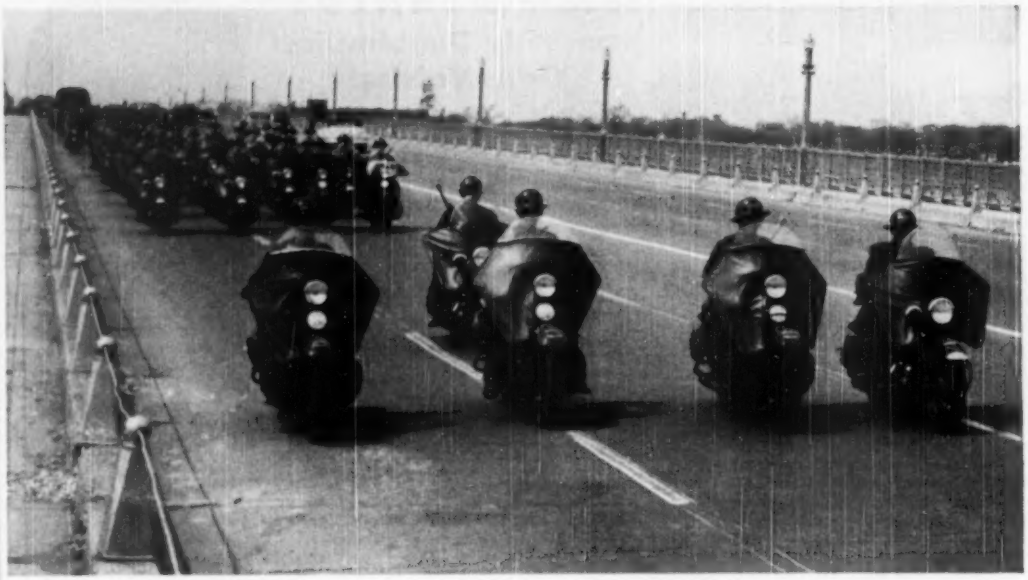
LOW PRESSURE VALVES CAN BE FURNISHED IN THE ABOVE TYPES, SIZES AND ACCESSORY EQUIPMENT. WRITE FOR DETAILS.

THE KENNEDY VALVE MFG. CO.
1030 EAST WATER ST.
ELMIRA, NEW YORK
VALVES • PIPE FITTINGS • FIRE HYDRANTS

OFFICE-WAREHOUSES IN NEW YORK, CHICAGO, SAN FRANCISCO • SALES REPRESENTATIVES IN PRINCIPAL CITIES

DETROIT SETS THE PACE

...IN ACCIDENT PREVENTION AND IN EMERGENCY PREPAREDNESS!



Shown above is Detroit, Michigan's Motorcycle Squadron on riot duty practice with helmets and riot guns.

CONGRATULATIONS to Detroit and its excellent police department for a fine traffic record! The National Traffic Safety Contest's monthly poll recently showed Detroit as placing second among America's largest cities in lowest number of accidents. Such recognition is high tribute to the efficiency of the city's traffic control program and to the outstanding work of its traffic officers. Gratifying, too, is the fact that the entire Detroit Motorcycle Squadron, mounted on Harley-Davidsons, helped establish this record. In addition to traffic patrol and general law enforcement, Detroit also uses its Harley-Davidsons for "riot" duty. For this work, motorcycles have proved unusually effective, by reason of their great maneuverability and speed. Your city also can increase its enforcement efficiency with the aid of Harley-Davidson Police Motorcycles, Servi-Cars and Sidecars. Ask your Harley-Davidson dealer to call on you with information, or write

HARLEY-DAVIDSON MOTOR COMPANY, Milwaukee 1, Wisconsin

HARLEY-DAVIDSON

MOTORCYCLES POLICE BETTER TRAFFIC CONTROL **SERVI-CARS**

H. Benit

H. R. Lucas, Jr.

Hyster Appointments

Phillip Hill, general sales manager, has announced the appointment of Harold R. Lucas, Jr., as assistant general sales manager of the Hyster Co., 2902 N. E. Clackamas St., Portland 8, Ore.

Henry Benit, formerly with the Gardner-Byrne Construction Co. of California, has been appointed assistant to Richard Stiegele, in charge of demonstrations of the Hyster grid roller, an earth compaction and black-top salvage tool designed for use with tractors or motor graders.

Hotpoint Makes New, Redesigned Garbage Grinder

Hotpoint, Inc., 5600 West Taylor St., Chicago 44, Ill., is now manufacturing in its Milwaukee dishwasher factory a redesigned kitchen food-waste disposer unit. The new model comes in a standard (MW5) as well as a ready plumbed version (MWP5).

Operating cost is less than 10c a month, according to tests conducted by the company. Hotpoint formerly purchased grinders from another manufacturer.

The new automatic Model MW5.

Infilco Relocates Offices

Infilco, Inc., manufacturers and designers of water conditioning, sewage disposal and waste treating plants, recently announced the relocation of its research, development and engineering divisions as well as its general offices. On and after September 1, 1950, these departments will be located in temporary quarters at 2750 South Twelfth Ave., Tucson, Ariz., while a new building is constructed.

Manufacturing, chemical laboratories, advertising and certain phases of engineering will continue in the plant at 325 West 25th Place, Chicago 16, Ill.

Swenson Appointment

Nils Walter Swenson was recently named assistant manager of branch sales for the mechanical goods division of the United States Rubber Co., at the company's headquarters, Rockefeller Center, New York, 20, N. Y.

Mr. Swenson was formerly manager of mechanical goods sales for the company's Buffalo, N. Y., branch.

The mechanical goods division manufactures all types of belting, hose, packing, molded goods, grinding wheels, rubber linings, printers' materials, and hundreds of miscellaneous rubber and plastic products for industry.

WACHS NATIONAL PIPE SAW
Tough Cuts MADE EASY
Close quarters — only 14½" between 24" mains.
Two clean square cuts and the pipe comes out.
MAKE FAST AND ACCURATE CUTS ON 12" TO 48" CAST IRON AND STEEL MAINS UNDER THE MOST DIFFICULT CONDITIONS
• Minimum Pipe Line down time.
• Cuts under water in flooded ditches.
• No broken pipe, milled cut.
• Thor Air-Powered, no flames near pipe.
• Set-up time about 15 minutes.
• Portable — weighs only 265 lbs. Two men can carry and set up unit.
• Small excavation — only 14" clearance needed.
• One machine cuts all pipe sizes from 12" to 48".
• Only two adjustments necessary for size changes.
Water Departments must make tough cuts during construction work and for emergency repairs. This one portable machine will handle all your pipe cuts from 12" diameter and up. You will not only save time and labor, but you will get tight joints because of the square milled cut. Cuts cement lined pipe too. This machine is a budget must for 1950.
Write today for descriptive folder and engineering data on this new labor saving saw.
THE E. H. WACHS COMPANY
1525 NORTH DAYTON STREET CHICAGO 22, ILLINOIS

OPERATORS SETTING NEW

Sweeping Records

WITHOUT LEAVING THEIR SEATS . . .

*Fully Automatic**

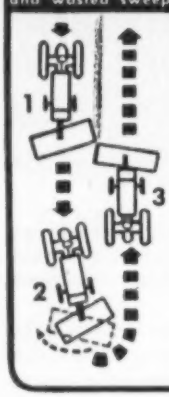
with the LULL Fluid-Driven SUPER SWEEPER

A Time-Saver for:

- Airports
- Streets
- Industrial Plants
- Universities and Colleges
- Parking Lots
- Institutions
- Strip Mining

*Fully Automatic

height adjustment and angle change eliminates dead-heading and wasted sweeping time.



1. Finger-tip positive controls permit ideal height and angle settings IN SECONDS for most efficient sweeping.
2. While continuing forward motion, sweeper angle quickly changed for return run without operator leaving his seat.
3. By eliminating wasted sweeping time, the fully automatic Lull Fluid-Driven Super Sweeper provides fastest 2 way sweeping possible.

LULL POWER HYDRAULIC CONTROL RAISES AND LOWERS BROOM . . . or sets at any angle in SECONDS!

The operator of this powerful deluxe Lull Super Sweeper is setting new standards for sweeper performance. *He spends all his time sweeping and eliminates wasteful time-consuming manual adjusting operations.* He never needs to leave his seat to remove a pin—or turn a crank—or even stop his forward motion to change his sweeping angle. At his finger-tips are all of the controls for broom rotation, speed, height and angle settings, *independent of traction motion!* He can make any angle selection from 35° left to 35° right in seconds.

LULL POWER HYDRAULIC CONTROL makes this amazing sweeper performance possible. With super speed and super power in the broom, the operator can cover more ground in less time. No backing . . . no deadheading. The Lull Super Sweeper is the ideal 2-way sweeper. Yes, it is so fast, the operator often gets his sweeping done in half the time, making himself available for other work.

Use Lull Super Sweepers for every sweeping job from snow removal in the North to strip mining operations anywhere. A heavy duty sweeper designed for super performance, and priced within the means of all users of power sweeping equipment. Write for literature on 5', 6', 7' models.

Lull Standard Fluid-Driven Sweepers with manual height and angle adjustment are also available in 5', 6', 7' models at low prices! Literature sent on request.

MAIL COUPON TODAY for complete details.

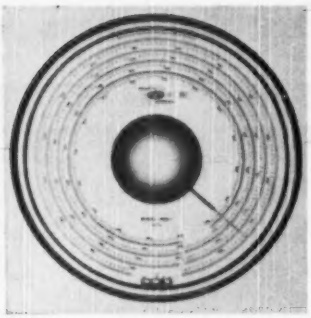
LULL Manufacturing Company
3612 East 44th Street, Minneapolis 6, Minn.
Please send illustrated literature on:
☐ THE LULL SUPER SWEEPER ☐ 5' ☐ 6' ☐ 7'
☐ THE LULL STANDARD SWEEPER ☐ 5' ☐ 6' ☐ 7'

Name..... Title.....
Company .....
Address .....
City..... State.....

LULL Manufacturing Company
3612 East 44th Street Minneapolis 6, Minn.

Designers and Builders of The Largest Line of Allied Equipment for Industrial Wheel Type Tractors

SHOVELOADERS ● UNIVERSAL LOADERS ● FLUID-DRIVEN SWEEPERS ● LULLDOZERS ● SHOULDER MAINTAINERS



Precision Micro Barometer

A supersensitive aneroid barometer, Model PMB-1, accurate to 1/1000-inch of mercury, is now available in the new precision micro barometer manufactured by The American Paulin System of Los Angeles, 1847 S. Flower St., Los Angeles 15, Calif. This barometer records minute changes in air pressure, changes which are of utmost importance for industrial and military purposes in ships, airports, weather stations, laboratories, etc.

The new instruments are built around an exclusive system of instrumentation that represents the first new principle in aneroid construction in over 100 years. The Model PMB has a range extending from 24.80 inches to 31.00 inches of mercury, and gives instantaneous readings without the necessity of corrections for temperature and latitude. All micro barometers are furnished with either wall mounting flange or russet leather carrying case.

Convention Exhibitors

The following members of the Water and Sewage Works Manufacturers Association, Inc., have reserved exhibit space at the forthcoming Southwest Section of American Water Works Association Convention, to be held at the Roosevelt Hotel, New Orleans, La., October 15 through 18, 1950:

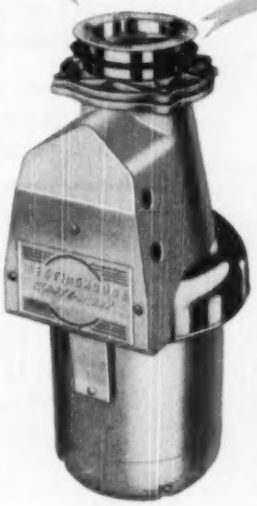
American Cast Iron Pipe Co., THE AMERICAN CITY Magazine, R. D. Wood Co., Wallace & Tiernan Co., Inc., Pittsburgh-Des Moines Steel Co., Hersey Mfg. Co., Art Concrete Works, Worthington-Gamon Meter Co., The Pitometer Co., The A. P. Smith Mfg. Co., Badger Meter Mfg. Co., Water Works Engineering, Mueller Co., The Dorr Co., Inc., Calgon, Inc., Johns-Manville, Neptune Meter Co., The Atlas Mineral Products Co., Gifford-Hill-American, Inc., McWane Cast Iron Pipe Co., Dresser Mfg. Div., Darling Valve & Mfg. Co., Hays Mfg Co., Rensselaer Valve Co., M & H Valve & Fittings Co., Buffalo Meter Co., United States Pipe and Foundry Co., Layne & Bowler, Inc., James B. Clow & Sons, Sherman Machine & Iron Works, Pittsburgh Equitable Meter Div., Rockwell Mfg. Co.

ANOTHER

Westinghouse

CONTRIBUTION

to Finer, Cleaner Cities



The Successor to the Garbage Can

THE NEW

Westinghouse

WASTE-AWAY

DISPOSES OF GARBAGE ELECTRICALLY

Garbage collection and disposal are headaches that plague every municipality. Some progressive cities have made municipal installations of such efficient garbage disposers as the Westinghouse Waste-Away. Others encourage installations by homeowners. Every Waste-Away installation means less garbage collection—more man power freed for other important jobs.

The Waste-Away shreds food waste into tiny bits and flushes it down the sink drain—without placing an undue burden on sewer facilities. It gets rid of the garbage can—breeding place for flies, vermin and disease. Wise city officials will consider city-wide use of the Waste-Away, encourage private installations.

Westinghouse

ELECTRIC CORPORATION

APPLIANCE DIVISION • MANSFIELD, OHIO

NISSLY LINERS

For All Purposes

Nissly Heavy-Duty Center Liner

Nissly Junior Center Liner

For perfect coverage and a straight-edge line—use a Nissly heavy-duty Center Liner, or the Nissly Junior Center Liner.

These machines are so constructed that the applicator remains plumb with the road surface at all times. The applicator is made of aluminum strung with bristles that withstand hard usage. The 7-gallon tank is easily filled through the large 10-inch opening at top. . . . Use any kind of paint. Turn the handle grips to release the paint. Tank can be rapidly cleaned by air pressure.

NISSLY BEAD DISPENSER

Weight	50 lbs.
Height	38 in.
Width	18 in.
Length	12 in.

Dispensing rolls of rubber; ball-bearing. Adjustable shields for any width of line from 2" to 8". Also adjustable for dispensing beads for heavy or light coverage.

For highest visibility at night, use reflector beads dispensed by Nissly Bead Dispenser.

Write for Circulars and Specifications

WALTER S. NISSLY, INC.

Manufacturers and Distributors

THE NISSLY ROAD MARKERS

BOX 1051 **YORK, PA.**

THE NEW WESTCHESTER UTILITY and BURNING CART

THE PORTABLE INCINERATOR

Burns all DRY REFUSE with ONE Handling

CLEANER GROUNDS — *QUICKER*

With this cart, one man does the work of many — in ONE operation. Leaves, brush cuttings, etc., are burned on the spot; ash catcher protects grass. Big 18 cu. ft. capacity and perfect balance mean bigger, easy-to-handle loads in transferring or carrying materials for compost.

ALL-WELDED

Length 6' overall; height 3' 4"; capacity 18 cu. ft.; wheel-treads 2½" wide; sheet steel ash catcher; weight 95 lbs. Shipped uncrated by Railway Express, f.o.b. Yonkers, N. Y.

$69.50

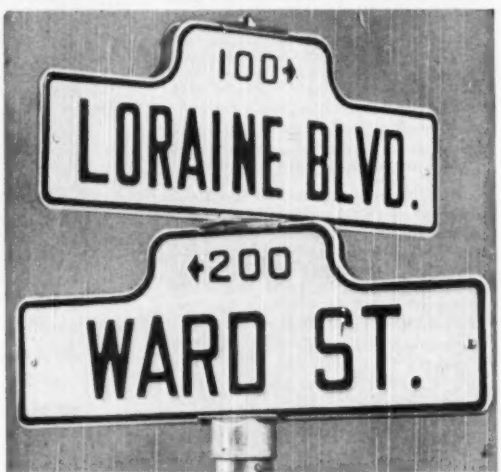
SAVES TIME SAVES MONEY

*Last summer, the Chicago Bureau of Sanitation bought 2 of these carts. Last Fall, **they ordered 10 more!***

Order today from

COUNTY SPECIALTIES

P. O. Box 626 **Port Chester, N. Y.**



"FERRO" STREET SIGNS

Embossed Porcelain Enamel—Permanent

Made for the Auto Age

Write Today for FREE Literature

FERRO ENAMELING CO.

1100—57th Avenue **Oakland 3, California**

ATTENTION AGENTS:

A few exclusive territories still open

Breaking Ground for New M. B. Skinner Plant

New M. B. Skinner Co. plant in South Bend 21, Indiana, will increase production space 50%. Production vice president P. D. Merrill directs ground breaking by an Allis-Chalmers tractor equipped with Tracto-Shovel loader.

ARBA Washington Contacts Expedite Preparation Measures

During World War II, arranging business conferences with proper Washington officials often necessitated the wasteful and time-consuming procedure of "going the rounds" before contacting the right person. Consequently, there is a marked preference on the part of Government officials to have designated Washington contacts upon whom they can depend, and who are always available for counsel.

Since the outstanding contribution of the highway industry to the successful prosecution of World War II clearly established the potentialities of the industry as a vital adjunct to defense and war preparation, the American Road Builders Association recently established liason contacts for the use of its members, should the present emergency require such contacts.

The Association suggests that full advantage be taken of the contact facilities available through the ARBA national headquarters, International Bldg., Washington 4, D. C. Although problems are anticipated which will require direct transactions between ARBA members and defense authorities, the Association can give material assistance in arranging conferences with appropriate officials.

Speaker's Voice Powers New Telephone

Direct telephone contact between wearers of gas masks or breathing apparatus over short or long distances is now possible with the new M-S-A Maskfone, manufactured by the Mine Safety Applainces Co., Braddock, Thomas and Meade Sts., Pittsburgh 8, Pa. The new Maskfone is powered by the speaker's voice, and requires no batteries or other power.

The complete Maskfone assembly, including transmitter, earphones with head harness, hand set, and 125 feet of cable on revolving reel, is adapted for use with all M-S-A respiratory protective equipment employing the M-S-A All-Vision Facepiece, when equipped with the company's Cleartone Speaking Diaphragm.

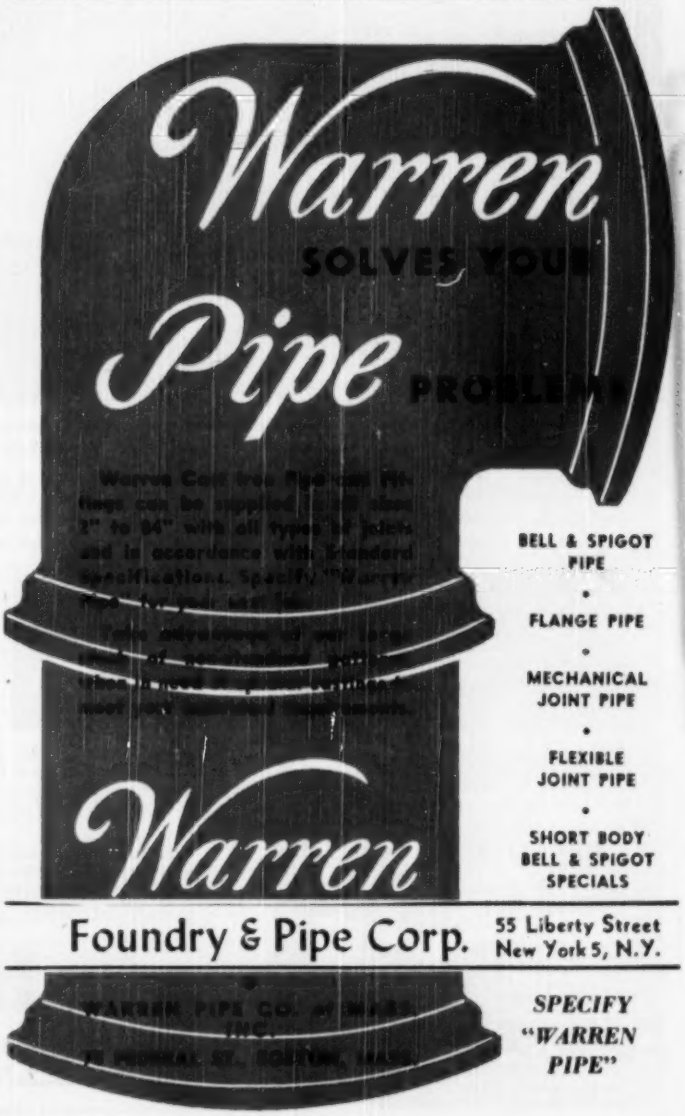
The instrument is approved by the U. S. Bureau of Mines for use with M-S-A Chemox Oxygen Breathing apparatus, Demand oxygen or air apparatus, Canister gas masks, and hose masks. Variations of the assembly are available where adaptation to individual installations are required.

The M-S-A Maskfone is described in detail in Bulletin No. B-21, available on request from THE AMERICAN CITY, or direct from Mine Safety Appliances.

R. M. Brown Rejoins Bristol

R. M. Brown, formerly sales engineer with The Bristol Co. of Canada, Ltd., and later instrumentation engineer with Stadler Hurter & Co., Montreal, consulting engineers, has rejoined the Bristol Co., 131 Bristol Road, Waterbury 20, Conn., manufacturers of automatic control and recording instruments.

Mr. Brown will be stationed at Baltimore, Md.



HEIL Colecto-Paks help Waterloo, Iowa keep sanitation cost down to only $2.97 per ton!

Totally-Enclosed Steel Body! Garbage is out of sight and smell, doesn't attract flies.
"Waist-High" Loading Height! Only 35 inches. Crews load easier, faster, with less strain.
Double Capacity! Packer plate compresses 24 cu. yds. of wrapped garbage in 12-cu. yd. body. This cuts down number of trips to incinerator.
CITY OF WATERLOO
SANITARY DEPT.
28

Here's what Carl Fagerlind, street superintendent of Waterloo, Iowa, says about Heil Colecto-Paks:

"In checking our records on the cost of replacement parts for our Heil Garbage Units since 1946, we find the total cost to be $199.69. We purchased our first unit in 1946 and, since that time, we have added six more units, the last one being purchased in April, 1949."

Because of cost-cutting performance like this, Heil Colecto-Paks are used by many other cities and towns. Make the most of *your* budget — be sure to specify Heil Colecto-Paks on your next bid.

Waterloo uses the sanitary land-fill method of garbage disposal. In summer, Heil Colecto-Paks make twice-a-week pickups. Loads are dumped into

trenches 10 feet deep, 20 feet wide, and 4 feet apart. Heil "Twin-Arm Hoists raise the fully-loaded Colecto-Pak bodies to 45° dumping angle in

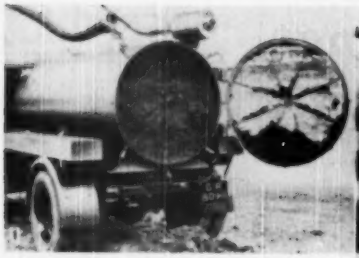
12 seconds. Discharge is fast, clean. A bulldozer covers the garbage to a depth of 18 ins. This system is sanitary and free from rats, flies, odor.

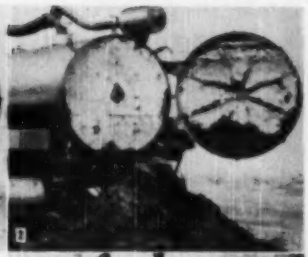
Heil Colecto-Paks are available in 9- and 12-cu. yd. capacities. Write today for Bulletin BH47109 and see how Heil Colecto-Paks can help you establish a record for low-cost garbage and rubbish collection.

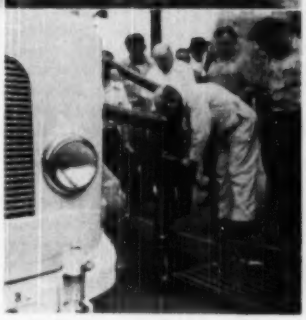
THE HEIL CO.

Dept. 4380, 3043 West Montana Street, Milwaukee 1, Wisconsin
Factories: Milwaukee — Hillside, N. J.
District Offices: Hillside, Washington, D. C., Atlanta, Milwaukee, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Los Angeles, Seattle

BH-154







1. The cleaner goes to work on a New York City catch basin. 2. Here is the way the dirt looks. Note its firm, dry texture. 3. The truck body is emptied by a ram that is also used to squeeze the water from the catch basin dirt.

English Catch-Basin Cleaner Can Double as Street Flusher

After 30 years' use in England, the Karrier-Yorkshire catch-basin cleaner has reached the shores of the United States. The first arrival of the latest model was driven in from Canada where it is being used by the cities of Vancouver and Galt, and soon will be used by Winnipeg. It is now on display at the main office and stock warehouse of the American distributor in Long Island City, N. Y.

The machine, built for narrow or traffic-congested streets, operates on vacuum, without nuisance to passers-by. It can refill the catch basin with clean water if desired. The tank has a capacity of 750 gallons, of which 300 gallons are in a separate compartment for clean water, placed forward, behind the driver. The rest of the tank is for the contents sucked from the basins. A hydraulic ram presses these contents, expelling excess water back into the catch basin. Thus the load, as finally discharged, is solid with the dirt of a great many basins. The manufacturer reports that a catch basin can be emptied in a matter of seconds by this machine.

The catch-basin cleaner can be used to flush streets and empty cesspools by adding a few simple accessories. One engine is used to operate both the vacuum pump and ram, through two power takeoffs. The intake pipe is four inches in diameter and is fitted with cover plates at bends to permit removal of sticks and stones. Illustrated literature and specifications may be obtained from Rootes Motors, Inc., 2711 Bridge Plaza North, Long Island City 1, N. Y.

Inter-American Association Elects E. J. Cleary

Edward J. Cleary, Executive Director of the Ohio River Valley Water Sanitation Commission, 414 Walnut St., Cincinnati 2, Ohio, was recently elected United States Director to the Board of Directors for the Inter-American Association of Sanitary Engineering for the three-year term, 1950-1953.

SEWAGE PLANT EXPANSION
• • • WITHOUT BOND ISSUE!

It's easy and economical to convert most overloaded sewage plants to the BIO-CHEMICAL PROCESS. Increase the capacity of existing activated sludge plants as much as 100% . . . small conversion costs can be paid for out of operating savings.

Get the most . . . the best . . . for the smallest possible amount of the taxpayer's money with the BIO-CHEMICAL PROCESS.

Write for further information.

the Bio-Chemical Process

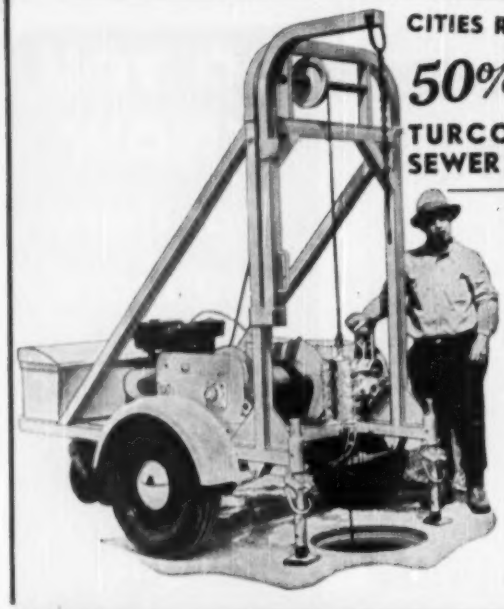
2266 North Meridian
Indianapolis 8, Indiana

130 Broadway
New York 5, New York

DO YOU KNOW that there are more Lyle Street Name Signs serving American cities and towns than those of any other make?

WRITE FOR CATALOG PRICES AND SAMPLES

LYLE SIGNS, INC.
2720 University Avenue, S. E.
Minneapolis, Minnesota



CITIES REPORT

50% Savings WITH TURCO MAXI-POWER SEWER CLEANING UNITS

Here's a machine that has the power and stamina to stand up under the most severe sewer cleaning conditions. Widely used all over America. Beautifully designed and constructed for highest efficiency. Now is the time to Modernize, Powerize and Economize with Turco Maxi-Power Sewer Cleaning Units.

WRITE FOR CATALOG: Get the complete construction and operating story and learn how you too can make substantial savings with Turco Units.

CHECK THESE *Exclusive Features*

1 TUBULAR FRAME . . . highest strength-to-weight ratio of any form of structure.

2 ENCLOSED GEARING . . . completely dust and dirt protected with oil bath lubrication.

3 SEALMASTER BEARINGS . . . Lubrication sealed in and dirt sealed out . . . built to last a lifetime.

4 THREE-SPEED TRANSMISSION . . . with built-multiple disc clutch . . . oil bath lubrication . . . built for rugged service.

5 POSITIVE CONTROL IMPULSES transmitted by Remote Control smoothly and accurately . . . no toggles or linkages to cause lost motion.

TURBINE SEWER MACHINE CO.

5210 W. State Street • Milwaukee, Wisconsin, U.S.A.

GEOPHONE*

Does Away With Costly, Old-Fashioned Methods of Locating Leaks!

•MONEY-SAVING • ACCURATE • FAST

★ **The Globe Geophone scientifically and accurately locates water and steam leaks. There's no costly, time-consuming excavation when a Geophone is used. A compact and sensitive instrument operating on the principles of the seismograph and stethoscope, the Geophone picks up and detects, even when 50 to 75 ft. away, the vibrations of the pipe break, and locates it accurately within a few minutes.**

The Geophone is indispensable for Water Departments and Industrial Plants. Used also with spectacular results in mining, oil and termite fields.

Complete Geophone outfit consists of connecting tubes, two Geophone discs, headpiece, and heavy leather-covered case with carrying shoulder strap **$85**

Pipe Phones $3.70
(Aquaphone)

Globe Phone Mfg. Corp. Reading, Mass., Dept. Y

Manufacturers of Geophone Since 1918

*Registered in United States Patent Office

3 *Money, Time and Labor Saving Features of*

UNIVERSAL* CAST IRON PIPE

Laid with Only Wrenches →

No Caulking Materials →

No Gaskets. No Bell Holes to Dig. →

*Reg. U. S. Pat. Office

For water supply, fire protection systems, sewage disposal systems, industrial, and irrigation. Flexible.

Dept. C,
THE CENTRAL FOUNDRY COMPANY
386 FOURTH AVENUE, NEW YORK 16, N. Y.

Gentlemen: Send us information and catalog on UNIVERSAL CAST IRON PIPE.

NAME .....

STREET .....

CITY .....

Mississippi Installs Semi-Actuated Traffic Controls

It's an Eagle Signal Corp. Semi-Actuated Controller with two 2-way, 4-light suspension type traffic signals. Double red indications for added protection account for the fourth indication in all four directions. This is the first Semi-Actuated Traffic installation in the State, and regulatory stop signs go out on U. S. Highway 80 and Van Winkle near Jackson, Mississippi. Gesture by A. M. White, Assistant Engineer of Maintenance, Mississippi State Highway Dept., as J. B. Brinkley, Foreman of Highway Dept. Sign Shops, surveys the recently completed installation. Signals are supplied by The Eagle Signal Corp., Moline, Ill.

Esty Resigns Danvers Post To Join Supply Companies

After serving 35 years in the Danvers, Mass., Water and Sewer Department, Superintendent Roger W. Esty recently announced his plans to retire from public service.

Mr. Esty will become associated with the dual firm of the Public Works Supply Co. and Cement Lined Pipe Co. of Lynn, Mass., as salesman, public relations advisor and consultant.

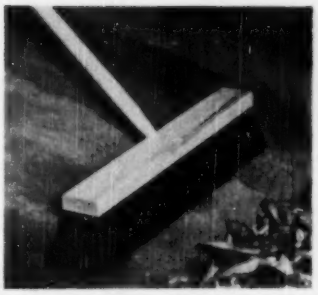
Assistant Superintendent Nelson Boardman will assume Mr. Esty's duties, under the direction of Town Manager Robert E. Layton.

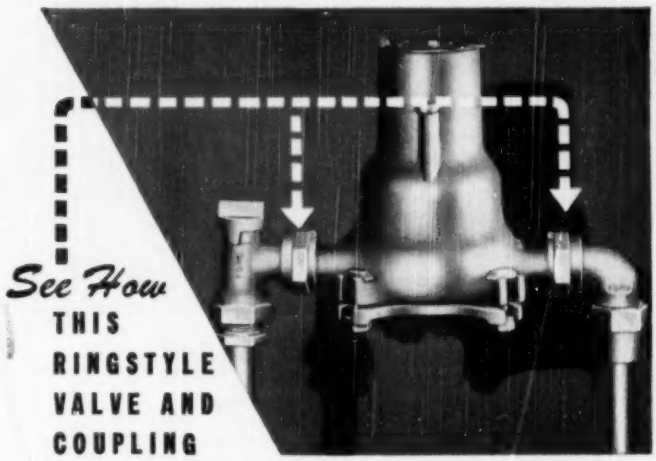
Mr. Esty began his career in Danvers in 1914, as inspector and assistant to the late consulting engineer Lewis D. Thorpe. A year later he joined the Danvers Water Department as clerk and collector, and in 1923 was appointed Superintendent. He was elected president of the New England Water Works Association in 1935-36, and served as chairman of the American Water Works Association in 1934, and on the AWWA Board of Directors for 3 years. He is currently serving as chairman of the AWWA Committee on Hydrants.

Industrial and Street Broom

The new Modglin No. 1024 heavy duty Perma-Push broom for street use is the most efficient and long-wearing push broom ever built for its purpose. Its Permene bristles are almost unbelievably durable and continue to sweep effectively long after bristles made of natural vegetable fibre would be completely worn out, according to the manufacturer, The Modglin Co., Inc., Industrial Products Div., Los Angeles 65, Calif.

Permene fibre is resistant to the acids and alkalis of cleaning solutions and to petroleum products. It will not absorb water. It never becomes soggy, waterlogged or matted, and works equally well on concrete, asphalt, brick, stone, and macadam.





CUT Installation Time!

Any water works man can see in a flash how Ford Ringstyle valves and couplings save pipe-fittings and installation time.

The meter nut is attached to the valve and the coupling by Ford's ingenious Ringstyle construction . . . . a sturdy bronze pin is driven through the nut and forms a ring behind the flange.

These fittings are described in our new catalog No. 50—it is FREE.

THE FORD METER BOX COMPANY, INC.

FOR BETTER WATER SERVICES FORD

Wabash, Indiana

Eliminate Garbage Collection Costs!

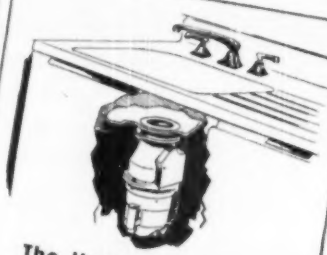
A bold statement—but it can be done with the Hotpoint Municipal Plan of Garbage Removal.

Garbage removal is becoming more and more costly. Furthermore, the old-fashioned "can and wagon" system will always be a malodorous, unsightly and dangerously unsanitary garbage collection method.

The Hotpoint Municipal Plan provides a method of garbage *elimination* which removes any need for a garbage collection budget. A complete, factual presentation, based on experience and written specifically for municipal officials, is available for your study. This plan is being presented at the request of municipal governing bodies all over the country. We shall be glad to present it to you.

Your community will welcome the opportunity to enjoy:

- *A convenient, new and modern garbage removal system.*
- *Health protection to the members of all families.*
- *Fly and rat pest reduction.*
- *Waste collection cost reduction.*
- *More digestion gas for use and sale.*
- *Elimination of food waste before it becomes garbage.*
- *Elimination of alley garbage can.*
- *Elimination of garbage collection problems.*
- *Elimination of garbage odors.*
- *True sanitation for your town.*



The Hotpoint Disposall® garbage disposer, is easy to install in any sink . . . convenient . . . safe . . . odorless and economical. Simple to operate . . . keeps kitchens, sinks and hands clean. Does not overload or clog sewer systems.

Hotpoint will gladly make a comprehensive presentation of the Hotpoint Municipal Plan to the interested parties of your city government. Write, wire or phone Hotpoint Disposall Department, 5600 West Taylor Street, Chicago 44, Illinois.

And—it saves you money!

Hotpoint Inc.

(A General Electric Affiliate)

5600 West Taylor Street, Chicago 44, Illinois

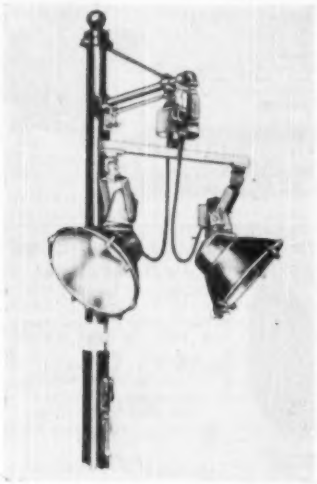
New Sales Engineer

The A. P. Smith Mfg. Co., East Orange, New Jersey, has announced the appointment of Mr. James M. Robinson, of Hornell, N. Y., as sales engineer in the New York-New Jersey territory, effective September 1, 1950.

J. M. Robinson

Mr. Robinson is well known to the members of the water works profession. Previous to his affiliation with The A. P. Smith Mfg. Co., he was associated with Rensselear Valve Co., Curtis Wright Co., and the Sterling Engine Co.

Mr. T. L. Halpin, who represented the company in this territory, resigned, effective May 1, 1950.



New Suspension Yoke For Outdoor Lights

The Thompson dual-floodlight suspension yoke manufactured by the Thompson Electric Co., 1101-20 Power Ave., Cleveland, Ohio, is designed for use with outdoor models of Thompson disconnecting and lowering hangers. The yoke provides for greater lighting efficiency, versatility, and economy, in plant yards, railroad yards, around-the-clock construction projects, parking lots, athletic fields, swimming pools, and airfield aprons, because it allows the two lights to be positioned and focused independently while operating on a common circuit.

The Thompson hanger permits lowering of the lighting fixtures to ground level for servicing, thereby eliminating all climbing and electrical hazards.

Heil Co. Enlarges Staff, Starts Training Program

The Heil Co., Milwaukee 1, Wis., manufacturers of road machinery, recently announced the appointment of Robert G. MacDonald as director of Industrial relations. Mr. MacDonald is a former commissioner of the U. S. Mediation and Conciliation Service in Milwaukee.

The company has also announced the inauguration of a 15-month training program for new employees, to include engineering, sales and administrative training.

Enterprise Appointment

Wren Malone, formerly Springfield, Ohio, manager for the National Supply Co., recently joined the Chicago branch of the Enterprise Engine & Foundry Co., 600 Florida St., San Francisco 10, Calif.

Wren Malone

Mr. Malone will serve Enterprise in the Illinois, Ohio, Indiana, Michigan, and Wisconsin area.

—M-SCOPE—
PIPE LOCATOR

TYPE AB — 1950 MODEL

- Metal Cased Cabinets
- One Man Operation
- Unsurpassed Efficiency
- Fully Guaranteed
- Immediate Shipment

PRICED ONLY $149.50

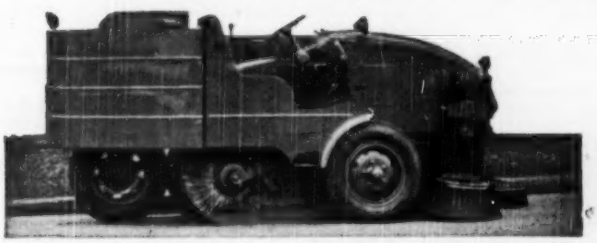
FREE LITERATURE

FISHER RESEARCH LAB., Inc.
Palo Alto California

South Bend

GUTTER-SNIPE
Model "E" Pick-Up Street Sweeper

- 2-cubic yard hopper
- 3 sweeping speeds
- Sweeps 6 feet wide
- Turns in 19′ circle
- Goes up a 10% grade



We also manufacture SOUTH BEND "Big 6" Street Flushers, Bituminous Distributors, Bituminous Maintenance Units, and Gravity and Pressure Sprinklers.

Municipal Supply Company, South Bend 23, Indiana, U. S. A.
Export Department — 44 Whitehall Street, New York 4, N. Y.

McWane's

BELL & SPIGOT

CAST IRON PIPE

EASY

- To CUT
- To TAP
- To LAY

It is corrosion resistant cast iron. Made to the rigid Standard Class 150 Federal specifications — 500 pound test.

Centrifugally Cast in 18-foot Lengths

McWANE CAST IRON PIPE CO.
Birmingham, Alabama

MORE WATER PER GALLON of FUEL

With

GORMAN-RUPP
SELF-PRIMING CENTRIFUGAL

Lightweight Pumps

HANDY PUMP, ¾ in. Electric 1000 GPH Max.

- SUCTION LIFT — up to 30 feet at sea level.
- FAST AUTOMATIC PRIMING—no ports or valves. Just start the pump and you start the water.
- PORTABILITY — The Handy Pump Electric Motor Driven weighs only 20 lbs. Midget 62 lbs.—Hawk 110 lbs. —Eagle 117 lbs. Provided with carrying handles.
- NON-CLOGGING — Any muck or solids that clear the intake strainer will pass through the pump.

MIDGET, 1½ in. 5500 GPH

HAWK, 2 in. 9000 GPH

EAGLE, 3 in. 10,500 GPH

Write for Bulletin 7-LW-13

Gorman-Rupp pumps are made in all sizes up to 240,000 GPH to cover any requirement. Inquiries invited related to your pumping problems.

THE GORMAN-RUPP COMPANY
MANSFIELD, OHIO

RESERVOIRS

repaired rapidly and economically with "GUNITE"

Is your reservoir leaking? You can't afford leaks when there is a water shortage or at any other time. "Gunite" is the answer. Here is a high-quality sand cement product, pneumatically applied quickly and economically by experienced workmen, to solve the problem of disintegration.

We welcome inquiries from those having concrete restoration problems of any kind.

OUR OPERATIONS ARE NATION-WIDE

Send for 48-page "Gunite" Bulletin

PRESSURE CONCRETE CO.
193 Emmett St., Newark 5, N. J. • 315 South Court St., Florence, Ala.
33 N. La Salle St., Chicago 2, Ill. • Liberty Life Bldg., Charlotte, N. C.

Packed in plastic bags — 50 per bag; 5 bags to tin pail. 4 tins per carton.

*This Little TOSSIT Capsule Kills Mosquitoes at the * Source*

*Ditches, catch basins, canals, rain pools or large swamps.

No equipment needed. Toss a Tossit in water for complete kill of malaria and pest mosquitoes.

CHEAPER - FASTER
Than Ordinary Spraying

Inspectors! Kill mosquitoes on the spot.

$39.50
Per Carton of 1,000 Tossits

Special Prices to Health Depts., Cities, Counties, States.

Address Inquiries to:

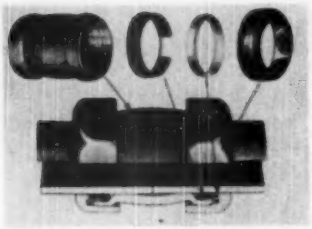
SOUTHERN ENTOMOLOGICAL CO.
2400 Tamarind Avenue, W. Palm Beach, Fla.

Attract More Shoppers to Your Business District

Today, business districts of cities in France, England, Brazil, boast modernized white-way fluorescent street-lighting. American made Post-Lites glamorize business streets in cities as far away as Thailand and the Belgian Congo.

To municipal leaders interested in genuine white-way lighting for business attraction, we have a message of tremendous importance. Write for Bulletin 250.

Address:
W. H. Long Co., 109 W. Illinois St., Chicago 10, Ill.



Flexible Coupling Simplifies Unusual Pipe Problems

A flexible coupling is being offered by Dresser Manufacturing Division, Dresser Industries, Inc., 59 Fisher Ave., Bradford, Pa., for use on small-diameter piping, that gives a practical answer to the long-awaited "pipe stretcher."

The coupling requires no threading of pipe ends, no exact pipe fitting, no groovings, no soldering, no flaring, no caulking. The company states that 30 seconds is all that is required to make a connection. A resilient gasket provides permanent flexibility, protects the line from vibration, accommodates pipe misalignment.

The couplings can be used on lines carrying air, water, gas and oil, sewage and low-pressure steam.

Many gas and water utilities use these couplings to solve unusual piping problems, the manufacturer states. They simplify installation and replacement of service lines where threading of pipe and joining of pipe ends in the ditch is a problem.

Some water companies use them for meter settings. One large city is experimenting with them to silence water meter noises in the house. They are used commonly around sewage plants for tank hook-ups.

A new 12-page catalog describing the coupling will be supplied on request by a responsible city official.

Elreco Traces Development Of Modern Lighting Standards

The gradual transition of styles in street lighting standards show a complete revolution from 1895 to the present day, according to a survey made by the Elreco Corp., 2305 Cormany Ave., Cincinnati 25, Ohio. Modern street lighting demands the return of the pendant-type standard which Elreco manufactured when the firm was first organized in 1892.

This transition is described in a new 16-page illustrated catalog recently published by the company. The catalog also features new and standard street lighting equipment and accessories manufactured by Elreco, including 23 different lighting standard and tubular steel products. Copies may be obtained by writing to the company at the above address.

A NECESSITY FOR EVERY MUNICIPALITY

The NETCO CATCH BASIN CLEANER with pneumatic controls

Simple • Positive Powerful

PNEUMATIC BUCKETS

Two types of Netco Buckets are available with large capacity: (1) An orange peel type which operates through an opening as small as 16 inches. (2) a clamshell designed to operate through rectangular frames as small as 13½" x 19".

These Cities and Many Others Own One or More

Netco Catch Basin Cleaners

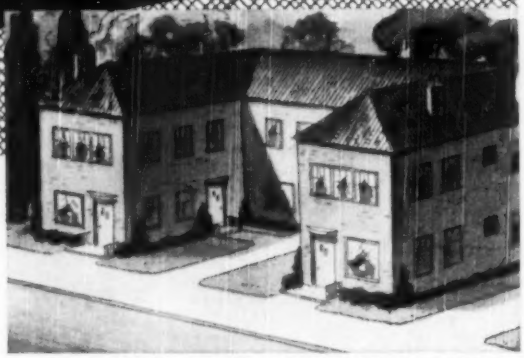
Boston, Mass.
New York City, N. Y.
Indianapolis, Ind.
New Brunswick, N. J.
Harrison, N. J.
East Cleveland, Ohio
Binghamton, N. Y.
Chicago, Ill.
Philadelphia, Pa.
Niles, Ohio

Check these features

- The Netco Catch Basin Cleaner can be mounted on any short wheel base truck having at least 8 ft. in back of cab. You can purchase unit separately and mount on your own chassis.
- The Netco Unit can be removed from truck and chassis in 30 minutes.
- The Netco can be operated continuously because the material removed from catch basins is loaded into other trucks. This unit will average 20 to 30 catch basins per 8 hour day.
- The Netco Bucket closes pneumatically, assuring positive and maximum digging efficiency.
- Positive and simple control of pneumatic bucket, boom swing, hoist clutch and boom brake by compressed air.
- The Bucket is lowered and raised by one cable. Only one hose is required to close it, and it is opened by powerful spring action.
- The Netco has a hoisting capacity up to 1500 lbs.

NETCO DIVISION
CLARK-WILCOX COMPANY
118 Western Avenue
Boston 34, Massachusetts

In Dearborn, Michigan they've made it the LAW!



City officials of Dearborn have earned the thanks of their community by taking the lead in abolishing the garbage nuisance!

IN MORE and more cities, rats and flies are being starved out of existence . . . garbage collection costs and problems are being stunted . . . the stage is being set for healthier, more pleasant city living.

Why?

Because alert city officials are giving the same attention to the modernization of garbage disposal that has been given to plumbing and sewage facilities in the past.

Because officials are making the use of automatic food waste disposers LAW—and are earning the thanks and respect of their communities for doing it.

The people of Dearborn, who shop, eat, and live in this fourth largest Michigan city, will be healthier and happier—because *alert city officials made it a LAW* that existing multiple dwellings (over four families), restaurants, hotels, and markets be equipped with food waste disposers within a year . . . and all new buildings of this nature must be so equipped. It's the LAW!

FROM YOUR OWN VIEWPOINT AND THE VIEWPOINT OF THE PUBLIC, CONSIDER THESE POINTS OF SUPERIORITY THAT MAKE THE YOUNGSTOWN KITCHENS FOOD WASTE DISPOSER *3 WAYS BEST:*

1 Food waste can be fed in continuously. No waiting for a load to be shredded and flushed with the Youngstown Disposer.

2 Youngstown rotary shredder turns in opposite direction each time switch is turned on, doubling life of cutting edges.

3 Direction of water swirl reverses each time switch is turned on, for *complete self-flushing*. Super-hard, chrome-plated steel shredders stay sharp and bright.

MULLINS MANUFACTURING CORPORATION

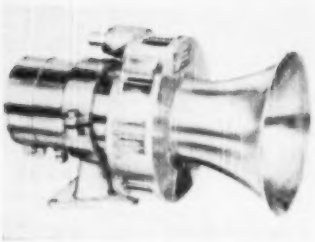
WARREN, OHIO

World's Largest Makers of Steel Kitchens

Youngstown Kitchens

FOOD WASTE DISPOSER

TAKE THE LEAD IN YOUR COMMUNITY IN ABOLISHING THE GARBAGE MENACE!



B & M Sirens Chosen By New Orleans Fire Dept.

When the New Orleans Fire Department won second place and an award of $300 in the National Fire Safety Contest sponsored by the National Association of Insurance Agents, Chief Howard L. Dey chose to spend the prize money for two B & M Model C-S-8-B Siro-Drift sirens, manufactured by the B & M Siren Mfg. Co., 763 East Pico Blvd., Los Angeles 21, Calif.

In cooperation with the purpose of the contest—to promote fire prevention—and in addition to supplying the sirens, the B & M Mfg. Co. had the prize award sirens heavily gold-plated and appropriately engraved.

Hough Co. and Ad Agency Win Putnam Award

The annual Putnam Award for "the best use of industrial advertising and the best documentation of such use" was presented to Raymond P. Wiggers, advertising manager of The Frank G. Hough Co., 710 Sunnyside Ave., Libertyville, Ill., manufacturers of front-end loaders for tractors, and other equipment, and to its agency, Ervin R. Abramson Advertising, Milwaukee, Wis. The Putnam Award, presented at the recent National Industrial Advertisers Association Convention in Los Angeles, was established by Col. Russell L. Putnam, president of the Putnam Publishing Co., to provide tangible evidence of the superiority, high efficiency, and effectiveness of industrial advertising.

Col. Putnam (left) presents the award to R. P. Wiggers (center) and E. R. Abramson.

HAISS Material Handling BUCKET LOADERS

FOUR MODELS

Load 3 to 8 Yards per min.

Self-Propelled

Self-Feeding

For loading: sand, gravel, stone, top-soil, coal, snow and similar materials. One-man operation, wheel or crawler mounted. Furnished with swivel chute or with swivel belt conveyor.

Special new features include: Sealed anti-friction bearings on head and tail shafts, two or four wheel drive, hydraulic raising and lowering, manganese or roller chain.

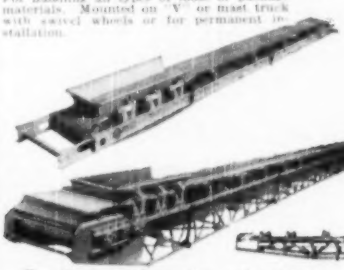
HAISS CONVEYORS CAR UNLOADERS

Flat and Trough Belt Conveyors

For handling all types of loose or package materials. Mounted on "V" or mast truck with swivel wheels or for permanent installation.

UNDERCAR UNLOADERS

Designed and built especially for loading sand, gravel, and crushed stone. Combination belt and positive chain drive. Capacity up to 5 tons per minute. Ask for bulletin No. 501.



SECTIONAL CONVEYORS

Channel or Lattice Frame construction. Made in easily assembled standard sections for permanent or portable installation. All sizes and capacities available for handling all types of aggregates as well as bagged or packaged materials.

For further information write, 'phone or wire. Experienced Haiss Representatives are located in all principal cities.

George Haiss Mfg. Co., Inc. division of **Pettibone Mulliken Corp.**

141st to 144th St. on Park Ave., New York 51, N. Y. 'Phone Mott Haven 5-2200

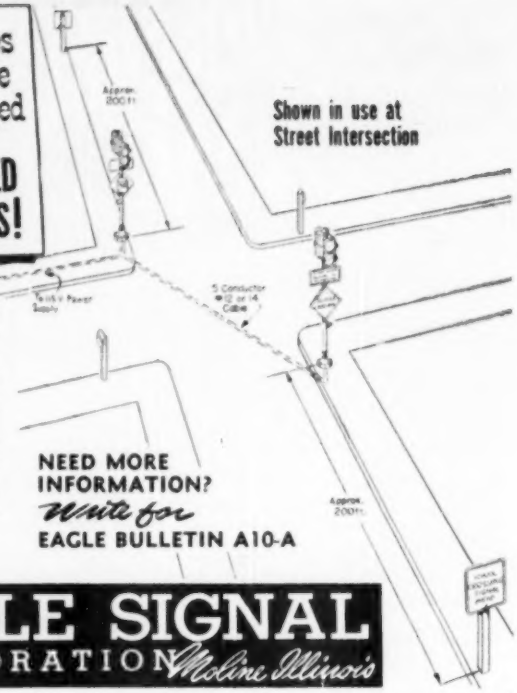
4700 W. Division St., Chicago 51, Ill. 'Phone Spaulding 2-9300

NEW YORK · CHICAGO · CEDAR RAPIDS

THIS SCHOOL SIGNAL SYSTEM is designed for push-button operation at required periods set on the time clock. Controller is flexibly-designed to give all sequences required for Red and Amber School Signals.

One Complete Package Unit includes all necessary equipment (including special signs) for one mid-block location or for intersections, such as that shown in diagram.

EAGLE'S high standard of quality is built into the mechanical and functional features.



NEED MORE INFORMATION?
Write for
EAGLE BULLETIN A10-A

EAGLE SIGNAL
CORPORATION *Moline Illinois*

AUTOMATIC VOTING MACHINES

Are the Choice of Over
5000 Cities and Towns from Coast to Coast

BECAUSE

1. Voting Is Easier and Faster
2. There Are No Spoiled Ballots
3. Absolute Secrecy Is Maintained
4. A Mechanically Accurate Count Is Assured
5. The Results Are Known When the Polls Close
6. A Permanent Record Is Obtained

AND

7. Election Costs Are Reduced.

If your community is interested in a better and less expensive election system—write

AUTOMATIC VOTING MACHINE CORPORATION
JAMESTOWN, NEW YORK

Sweeper Exhibited at L. A. and N. Y. Conventions

The 1951 Mobil-Sweeper will be exhibited at the Public Works Convention, Los Angeles, Oct. 15-19, and at the League of California Cities Convention, Los Angeles, Oct. 22-25. The Mobil-Sweeper, manufactured by the Conveyor Co. of Los Angeles, Calif., is the only full-sized sweeper which provides steel cab and safety windshield as standard equipment, the manufacturer states.

Especially interesting to municipal engineers is the ability of the sweeper to travel to and from central dumping areas at regular automobile traffic speeds. The unit has a safe, maximum highway speed of 55 miles per hour, and sweeping speeds of 1½ to 10 mph. Four-wheel brakes assure safe operation on steep hills, and the short wheel base makes it easy to negotiate sharp turns with maximum sweeping efficiency. A trucktype snow plow attachment fits the sweeper for winter use.

For literature and complete details write The Conveyor Co., 3220 E. Slauson Ave., Los Angeles 58, Calif.

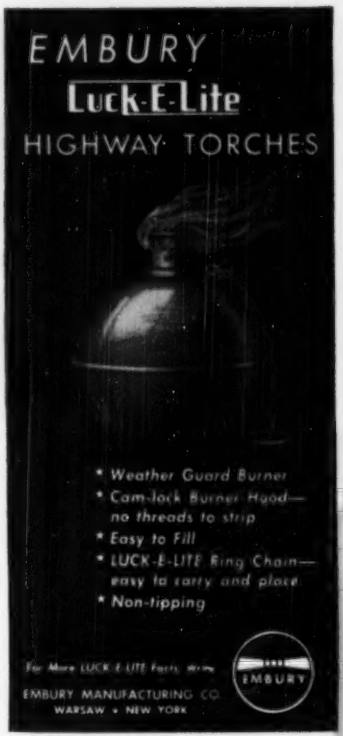
New Police Motorcycles

Los Angeles motorcycle squad enters Santa Barbara on a break in ride of 35 new 1950 Harley-Davidson Hydra-Glides, manufactured by the Harley-Davidson Motor Co. Milwaukee 1, Wis. After riding 500 miles these officers will use the same motorcycles for their duties. Each officer receives an initial two-months' course in motorcycling. Los Angeles has 499 solo motorcycles and 75 three-wheelers.

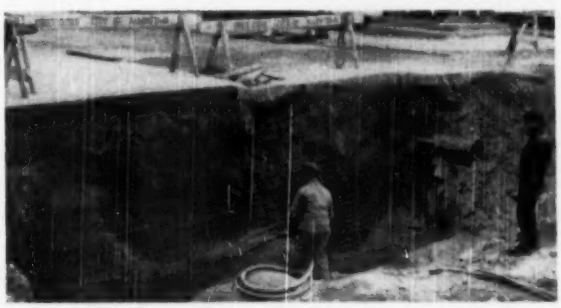
New, Lighter Lawn Rake

The Disston Spring-Action rake makes lawn raking easier, according to the manufacturer, Henry Disston & Sons, Inc., (Adv. Dept.), 865 Tacony, Philadelphia, 35, Pa.

Used by park, cemetery, or golf course gardeners, this rake has teeth of special flat spring steel, hardened and oil tempered, held in place by a patented slot-and-key device. A unique backbone spring takes the strain off the teeth and enables the frame to be made lighter and stronger.



CAVE-IN HALTED WITH "GUNITE"



The soil around Allentown, Pennsylvania, is largely limestone. One night, a passing automobile's vibration caused an entire street intersection to cave in over an unsuspected cavity. Gas mains exploded and water lines ruptured. The surge of water from the broken mains ate dangerously into the surrounding soil. Nearby structures were in danger of collapsing. As soon as practicable, one of our crews began the application of reinforced GUNITE over exposed rock surfaces (see photo above) to prevent air slacking and further undermining of the surrounding area. Our knowledge of how to cope with this situation was gained through actual experience in the construction of water tunnels in New York City, Baltimore, Boston, Toronto, as well as in many coal mines.

A completely illustrated catalog describing hundreds of successful GUNITE jobs we have performed in yours for the asking. A request for Bulletin D2400 will bring you a free copy by return mail.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.
MANUFACTURERS OF THE CEMENT GUN

Sidewalk display of new traffic safety equipment purchased by North Bergen, N. J. Included are Traficones made by Enterprise Development Corp., 231 W. Olive St, Burbank, Calif.; Tasco caution signs by Traffic & Street Sign Co., 84 Foundry St., Newark 5, N. J.; battery-powered spot lights with straight beam and flasher made by Portable Light Co., 216 William St., New York 7, and a 1950 Harley-Davidson police Servi-Car manufactured by Harley-Davidson Motor Co., Milwaukee 1, Wis. The men are Commissioner Ralph Feigelson; William Jacobs, Harley-Davidson dealer; Mayor Harry Buesser; Patrolman Al Pinto, Police Athletic League supervisor; mounted motorcycle officer Leonard McManus; Sgt. John Kohlmann, and Chief of Detectives Patrick Sullivan.

NEW!
PATHFINDER
PIPE LOCATOR
NOW TRADE-IN YOUR OLD PIPE LOCATOR
★ Powerful Precision Unit
★ Economically Priced
★ Lifetime Guarantee
PATHFINDER is today's BEST BUY! This amazing new 1950 pipe locator is FIRST with a liberal trade-in allowance for your old equipment — first with all vital features combined in one handy, compact unit.
Take advantage of this money-saving opportunity. Get the facts at once and you'll buy a PATHFINDER!
Quickly and accurately locates position and depth of pipes, trees, valves and buried tools.
Write! State model and year of locator to be traded.
PATHFINDER COMPANY
1726 Beverly Drive • Pasadena 7, California

New Sales Representative

The Hays Mfg. Co., Erie, Pa., manufacturers of water service products, has announced the appointment of Mr. Guy T. Ashworth as sales representative for Louisiana, Mississippi, and Tennessee.

G. T. Ashworth

A graduate of Louisiana Polytechnic Institute, Mr. Ashworth has been an instructor at Louisiana State University.

New Ion Exchange Resin A Water-Softening Aid

Commercial availability of a new medium-capacity cation exchange resin, designated as Amberlite IR-105G, is announced by the Resinous Products Div., Rohm & Haas Co., Philadelphia, Pa. The new exchanger combines the hydaulic behavior of Amberlite IR-100 with the high capacity and regeneration efficiency of IR-105, and has replaced those products.

The new IR-105G is a phenolic type resin furnished in granular, rather than beaded form, giving it improved hydraulic characteristics. Its physical ruggedness, chemical stability, and high regeneration efficiency have been substantiated over a three-year period in small commercial-scale units. In the hydrogen cycle it is especially effective in de-alkalization for boiler feed water and treatment. In the sodium form, it is particularly suitable for water softening.

Laboratory notes on its behavior and applications are available from the manufacturer.

SPECIALISTS IN THE REVALUATION OF REAL ESTATE, PERSONAL PROPERTY AND PUBLIC UTILITIES FOR LOCAL TAX EQUALIZATION PURPOSES

Illustrated Brochure Upon Request

THE J.M. CLEMINSHAW CO.
APPRAISERS
FOUNDED 1923
UNION COMMERCE BLDG., CLEVELAND

Our Twenty-Seventh Year

"Public Appraisal Service is a Public Trust"

Koehring Co. Appoints Asst. General Sales Manager

R. E. Bansemer, former district sales representative has been appointed assistant general sales manager of the Koehring Co., Milwaukee 16, Wis., manufacturers of heavy-duty construction equipment.

R. E. Bansemer

Also appointed were three new district sales representatives: R. K. Patterson, New England, C. Byron Walker, Pacific Northwest and Al Schlosser, Southeast.

Outdoor Lighting Hanger For Single or Dual Units

The new Model AL-4660 hanger is recommended for suspending separately controlled floodlights which may be of different sizes or types, clusters of pre-focused spotlights, pairs of railroad grade crossing or underpass flasher signals, 4-wire traffic lights, and for applications in plant yards, municipal recreation areas and swimming pools.

The new Model AL-4660 hanger.

This hanger provides for effective suspension, control, and maintenance of multiple lights. It permits the suspension of pair of lighting units, or single units requiring two or three circuits, from a single Thompson hanger, and provides for efficient, safe, low-cost luminaire maintenance at ground level.

The new four-pole hanger is available from stock. For complete details write The Thompson Electric Co., 1101-20 Power Ave., Cleveland 14, Ohio.

19 m.p.h. DOZERS on RUBBER drive city streets... get more work done

1 Doze Dirt

Tournadozer is ready at a moment's notice to drive anywhere at speeds up to 19 m.p.h. . . . grade parking lots, spread cinders, maintain roads. Fast forward and reverse speeds let rig double ordinary crawler output. Instant gear selection retains vital momentum, keeps big loads rolling.

2 Cover Garbage

One 180 h.p. Model "C" or one 122 h.p. Model D Tournadozer will handle all operations on city landfill dump. One versatile rig excavates disposal trenches . . . spreads truck-dumped garbage . . . solidly compacts refuse during normal travel . . . covers it with dirt from next disposal trench.

3 Stockpile Coal

Tournadozer's giant 21.00 x 25 low-pressure tires, high shuttle speeds, and fast-acting electric-control blade make it ideal for handling coal. Rig rolls easily over surface . . . compacts coal without crushing it . . . reduces possibility of spontaneous combustion.

4 Plow Snow

Equipped with regular 11'2" Dozer, or interchangeable 12'3" V-plow, Tournadozer is an excellent snow and ice-removing tool. Adjustable runner shoe, giant tires protect surface. Your LeTourneau Distributor can give you all the facts. Call him, or write TODAY.

Mail Today to: R. G. LeTOURNEAU, Inc., Peoria, Ill.

for information on ☐ 180 h.p. Model C or ☐ 122 h.p. Model D Tournadozer to be used for

NAME

TITLE

DEPARTMENT

CITY, STATE

LeTOURNEAU TOURNADOZERS

IT'S RUBBER THAT PUTS THE ACTION IN TRACTION

HAISS Quality Since 1890 CLAMSHELL BUCKETS

Excavating • Trenching • Dredging • Rehandling

Capacities ¼ to 3 Yards . . . Ask for Bulletin No. H-175

George Haiss Mfg. Co., Inc. division of **Pettibone Mulliken Corporation**

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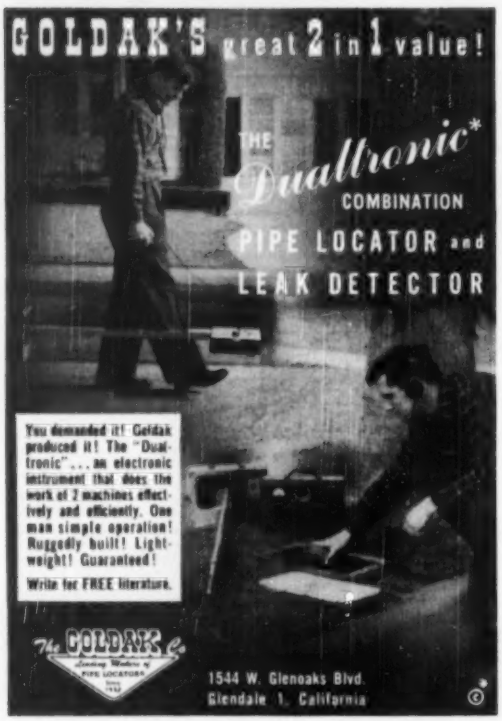
GOLDAK'S great 2 in 1 value!
THE Dualtronic* COMBINATION PIPE LOCATOR and LEAK DETECTOR
You demanded it! Goldak produced it! The "Dualtronic"... an electronic instrument that does the work of 2 machines effectively and efficiently. One man simple operation! Ruggedly built! Lightweight! Guaranteed!
Write for FREE literature.
The GOLDAK Co.
1544 W. Glenoaks Blvd.
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New and No Pollution
MURDOCK
The finest outdoor Drinking Fountain in the world.
Drinking water supply line absolutely free from danger of pollution. No backsiphonage possible.
Write for descriptive folder on this amazing fountain.
THE MURDOCK MFG. & SUPPLY CO.
Cincinnati 2, Ohio

Connery's Style W Heating Kettle Made in 75, 110, 165 and 210 Gallons.

For speedy heating of Tar and Asphalt for road, street and airport runway repairs use Connery's style W kettle, the most efficient heating kettle of its kind.

Write for Bulletin B7

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SPECIALISTS IN CEMENT GUN WORK

RESERVOIR LININGS (NEW AND OLD) • CONCRETE AND MASONRY REPAIRS • STEEL ENCASEMENT • FIREPROOFING • STEEL COAL BUNKER, STACK, HOPPER, AND PLATE LINING • SEWER LINING AND REPAIRING • CANAL, DITCH, AND DRAIN LINING.

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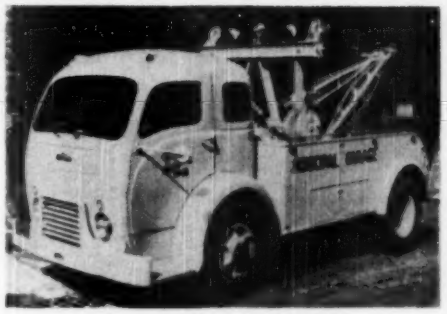
See our catalog in Sweet's

New Design in Police Tow Trucks

White 3000 truck with crane and wrecker body, used by city police in Columbus, O., to tow parked cars off the downtown streets. Product of The White Motor Company, Cleveland, O., truck has wide front axle, short turning radius and short over-all length for maneuverability. New weight distribution shifts weight to front end.



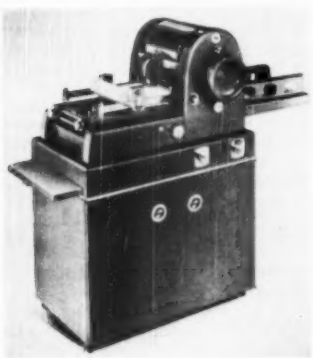
National Supply Buys Atlas Diesel Plant

The National Supply Co., Pittsburgh, Pa., manufacturers and distributors of oil field machinery and equipment, recently purchased assets of the engine division of the Atlas Imperial Diesel Engine Co., Oakland, Calif.

Manufacture of Atlas Imperial diesel engines and parts will be carried on at National's Springfield, Ohio, engine division plant.

The purchase included the name, patents, trademarks, and designs, certain machinery and equipment, as well as sales and service outlets and inventories in the United States and Canada.

National Supply Superior diesels have for many years enjoyed an enviable reputation in the municipal field and inland waterways marine service. Atlas has had a high degree of acceptance in the marine, work boat, fishing, and foreign fields. The merging of the two companies will provide an unusually complete group of sales and service facilities from the point of view of both Superior and Atlas engine owners. Imperials, like Superior engines, are being operated in practically every country in the world and in almost every conceivable type of service.



Automatic Stacker On New Mimeograph

The new A. B. Dick Co. Model 450, heavy duty, electrically-driven mimeograph is equipped with a stacking mechanism which jogs the copies as they fell into the receiving tray, eliminating time-consuming hand jogging. Copies stacked in this manner are ready to be re-run on the reverse side, or wrapped, padded, and delivered without further jogging or stacking.

For further information, write A. B. Dick Co., 5700 Touhy Ave., Chicago 31, Ill.

THE MODERN LAWN MOWER SHARPENER

CUTS MAINTENANCE COSTS

•

LOWER CAPITAL INVESTMENT

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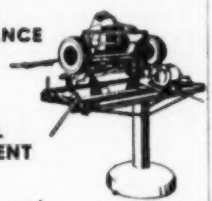

Economically and Quickly Sharpens All Municipal Mowers

Priced $241.50 (less motor)

Sharpens All Reel Type Mowers • Hand, Power or Gang • 10 to 20 Minutes • No Dismantling No Extra Attachments Needed

All reel type mowers, from 5-inch edgers to 36 inch power mowers, are quickly sharpened to extreme ends of both left and right twist reel blades. Handle, wheels, roller and motor repair in place when sharpening is in process. Bed knife is sharpened in same brackets that hold mower in grinding position. No extra attachments required. One lever puts mower or bed knife in grinding position. 100% steel construction. Grinding head rides on five ball bearing races. Small, compact, easy to operate. Sharpens wood chisels, joiner knives and planer blades without extra attachments. Skate Sharpener Attachments available.

1/3-hp. G.E. 60-cycle Motors now available—$21.50 extra.

Send for Free Bulletin No. 258

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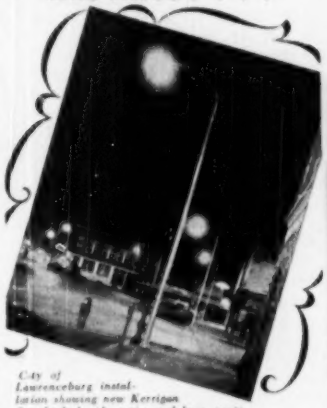
Your Town

can Have Beautiful WELL-LIGHTED STREETS with KERRIGAN STANDARDS Like These . . . .



City of Lawrenceburg installation showing new Kerrigan Standards beside antiquated lamp posts

. . . . With KERRIGAN Weldforged LIGHTING STANDARDS, designed and engineered to make night-driving in your town just like day . . . Standards that meet the highest engineering standards for highway and street lighting.

. . . . Notice what one progressive Tennessee town did to light its streets; then check the Kerrigan specifications below to see how much more Kerrigan Standards offer you.

- ✓ Shafts (20', 25', & 30') and Mast Arms (4', 6', 8', 10', 12' & 15') to conform to I.E.S. recommendations.
- ✓ Continuous Tapered Octagon shafts from open hearth steel.
- ✓ Heavy steel construction for maximum strength.
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- ✓ Ornamental scroll braces for beauty AND strength.
- ✓ Mechanical priming at factory with red oxide (inside and out) for longer life. Finish coat can be easily applied after standards are in place.
- ✓ Special designs to meet ANY and ALL special requirements. CONSULT THE KERRIGAN ENGINEERING DEPARTMENT.

WRITE NOW (on your letterhead please) for your FREE COPY of our Kerrigan Lighting Standard booklet A1A which gives you detailed specifications and catalog information.

— Write —

KERRIGAN IRON WORKS, Inc.

General Sales Office

274 MADISON AVENUE, N. Y. C.

Nashville Housing Authority Records Prove Economy of the Dempster-Dumpster System

A Message To All Cost Minded Municipalities, Housing Authorities—

"The Dempster-Dumpster System has fulfilled our requirements better than any other system of trash collection," the Nashville Housing Authority recently reported to the manufacturers, Dempster Brothers, Inc.

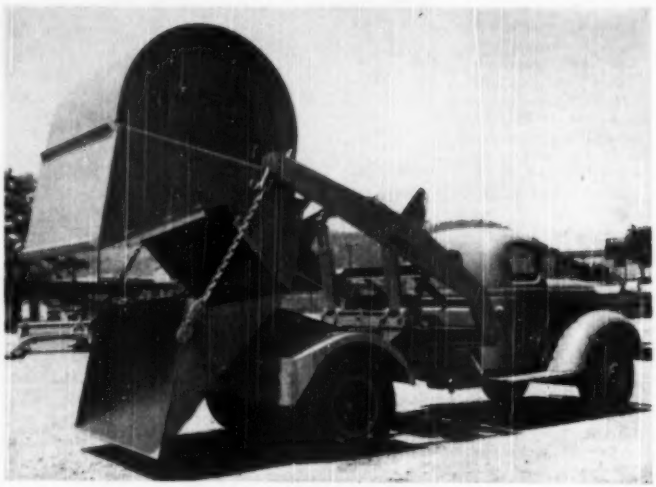
The Nashville Housing Authority is just one of the hundreds of users of the Dempster-Dumpster System who have cut their collection costs (oftentimes in half) and increased collection efficiency tremendously, after installing the Dempster-Dumpster System of bulk trash and rubbish collection.

Operated By One Man

The Dempster-Dumpster System is, simply stated, one or more truck-mounted Dempster-Dumpsters, with one man, the driver, to each unit, servicing any number of detachable Dempster-Dumpster containers ranging in size up to 12 cu. yds. The Dempster-Dumpster makes scheduled calls at housing, market and business areas, hospitals, schools, etc., and picks up a pre-loaded container, hauls it to disposal area where contents are dumped automatically, then returns container to replace another pre-loaded container.

This single truck-mounted Dempster-Dumpster services any number of containers, one after another. Each of the containers in the NHA's housing areas handle the refuse accumulated by 33 families, and are emptied twice a week by one of the City of Nashville's Dempster-Dumpsters.

The sanitation and cleanliness of the Dempster-Dumpster System are due to the completely closed steel containers. Trash and refuse cannot be scattered over streets and alleys by winds or scavengers in the fire-proof and rat-proof Dempster-Dumpster containers.



HERE'S A 10 CU. YD. APARTMENT TYPE container shown in dumping position. Its payload capacity is greater than the average conventional truck body. Container is placed in dumping position and drop-bottom section of container is lowered for dumping . . . all under complete control of driver in cab. This is the type container that handles the refuse accumulated by 33 families in a Nashville housing area.

System Grows as Needed

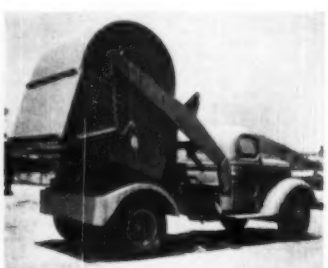
The City of Birmingham started out with 10 containers and one Dempster-Dumpster in 1938. Now Birmingham has 12 Dempster-Dumpsters servicing 204 containers. Richmond, Va. started out with 14 containers and two Dempster-Dumpsters in 1946. Today Richmond has six Dempster-Dumpsters servicing 288 containers. And so on down the line in city after city where the Dempster-Dumpster System is cleaning up business areas, school and housing areas, etc., and saving taxpayers thousands of dollars annually.

For example, when Richmond replaced the conventional open truck method of bulk rubbish collection in the business area with the Dempster-Dumpster System, it cut collection costs from $1.03 to .43 a cubic yard.

The pay-load capacity of the larger Dempster-Dumpster Containers is equal to or greater than conventional truck bodies. It is important to remember that containers are available in many different designs of every desired size. For instance, where it is desirable to have a water-tight container for moist or wet rubbish, a Tilt Type container is used. And, bear in mind, regardless of the design or size of the containers you have spotted at your congested business areas, schools, apartments, etc., one truck-mounted Dempster-Dumpster can service all containers.

The Dempster-Dumpster System triples man-hour efficiency . . . reduces truck investment, gas, oil, maintenance costs . . . improves "housekeeping" methods . . . reduces fire hazards . . . provides an easier, quicker, safer and more effective manner of handling trash and refuse.

If you have a bulk refuse handling problem, check up, by all means, on the Dempster-Dumpster System! Write today to Dempster Brothers, Inc. for complete information.



PICK-UP AND HAULING OPERATIONS are shown in the two photos above. Driver backs Dempster-Dumpster Unit up to loaded container, slips lifting chains onto lugs at each end of container, then, by hydraulic controls in the cab, lifts container into carrying position and drives to disposal area.

DEMPSTER DUMPSTER
TRADE MARK REG.

DEMPSTER BROTHERS
890 Dempster Bldg.
Knoxville 17, Tennessee

New Vice-President

Gerald F. Twist has been elected a vice president of the Food Machinery and Chemical Corp., San Jose 5, Calif. Mr. Twist is manager of FMC's Peerless Pump Div., with major plants located at Los Angeles and Indianapolis. He became associated with FMC in 1930, then joined the Atlas Imperial Diesel Engine Co., Oakland, Calif., where he became executive vice president and a director of the organization.

G. F. Twist

In 1947, Mr. Twist took charge of FMC's subsidiary, the Stokes and Smith Co., Philadelphia, Pa., then became manager of the Peerless Pump Div.

Need Sodium Fluoride For Dental Health Measure?

The number of cities using sodium silicofluoride in the water supplies to supply the fluoride ion for a dental health measure has been increasing as the evidence confirming its effectiveness grows. Blockson sodium silicofluoride, a white, free flowing, odorless crystalline product furnished in either powdered or crystal form can be used in such a program. The high purity of initial raw materials insures the highest quality product at all times.

This product, made by the Blockson Chemical Co., Joliet, Ill., has a strength of 98½% as NaF, or 60% as fluorine. Its solubility in at 25 C is 0.77 gms per 100 gms of water.

LeTourneau Wins Ad Contest

Joe Serkowich (center), advertising manager for R. G. LeTourneau, Inc., Peoria, Ill., accepts first place silver plaque award from James G. Lyne (right), chairman of Associated Business Publications, as Arnold Andrews, head of LeTourneau's ad agency, looks on. LeTourneau manufactures the Tournapull, a self-propelled, rubber-tired earthmover, and the high-speed Tournadozer, a dozing, pushing and pulling, 4-wheeled tractor.

New Company Formed

The Raymond Concrete Pipe Co. and the American Pipe & Construction Co. have organized Pipe Linings, Inc., a new company, with its New York City office at 140 Cedar St., and its Los Angeles, Calif., office at Box 3428 Terminal Annex.

Pipe Linings, Inc., will specialize in the cement lining of small diameter pipe, continuing the work of Tate Pipe Linings, Inc., of Andover, Mass., owned by Mr. E. H. Lewis. The Tate company is in process of dissolution and most of its equipment and some of its personnel have been acquired by Pipe Linings, Inc., for which company Mr. Lewis will act as consultant.

Large diameter pipe will continue to be lined in the west by the Centriline Div. of the American Pipe & Construction Co., and in other parts of the United States by the Centriline Corp. of New York. Centriline and Pipe Linings, Inc., will accordingly be able to cover the entire field of pipeline reconditioning in cast iron, steel, concrete, or tile mains in diameters from 4 inches and upwards.

Mr. William A. Johnson, of the American Pipe & Construction Co., is the president of the new company; Mr. J. W. Taussig, of Raymond Concrete Pipe Co., is vice president, and Mr. J. P. Cummins is the Eastern general manager. Pipe Linings, Inc., invites inquiries.

Stewart PRODUCTS

FOR PUBLIC PROPERTY

Here are a few of a wide range of high-quality products Stewart manufactures for the protection and beautification of all types of public property. There are many more. So if the product you need is made of iron, wire or bronze, it will pay you to write us.

FLAGPOLES—Made of full weight standard pipe, heavily galvanized. Furnished with pulley, but not rope. When writing for prices please give desired height above ground line.

Stewart CHAIN LINK WIRE FENCE is made in several styles, heights and weights, with or without arrangement for barbed wire overhang. Style OTM with iron gate is illustrated.

WIRE MESH PARTITIONS — Sectional—fit any space—easily and quickly erected. Ideal for locker rooms, storerooms, toolrooms, etc.

Stewart IRON PICKET FENCE is available in an unusually wide range of designs and in plain or ornamental iron. Walk and drive gates are made to match line of fence.

WINDOW GUARDS (wire or iron) in standard or special sizes to fit any size or shape opening. When requesting prices please send sketch and give all measurements.

No. 370 SETTEE—Comfortable, attractive, long-lasting. Framework is galvanized after fabrication for maximum resistance to rust. Wood slats painted green. Made in 4', 5' and 6' lengths. Prices on request.

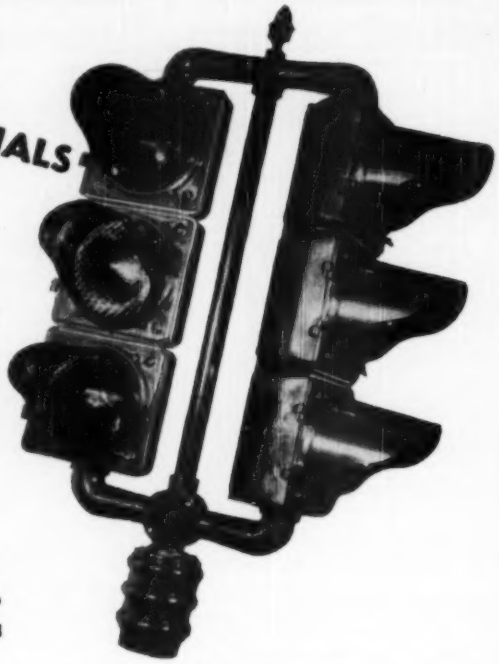
Other products: Iron Railings, Steel Folding Gates, Ornamental Iron Lanterns, Grilles, Bronze Plaques, etc. When requesting literature, please mention products in which you are especially interested. This enables us to send correct catalogs

Stewart IRON and WIRE FENCES

The Stewart Iron Works Co., Inc.
1721 Stewart Block, Cincinnati 1, Ohio
Experts in Metal Fabrication Since 1886

AUTOFLOW TRAFFIC SIGNALS

- Universal mounting and adjustment
- Modernistic and streamlined in design
- Dust and weather proofed throughout
- Lightweight sectional construction
- Sections and parts 100% interchangeable
- Span-wire, mast-arm, bracket, pedestal or pipe mounting
- Spun aluminum Alzak reflectors
- Adjustable lamp focusing
- No tools required for inspections or adjustments



For Further Information, write or wire

SOUTHERN SIGNALS, INC.

222 Beach Street — Box 1303
Shreveport, Louisiana

STOP

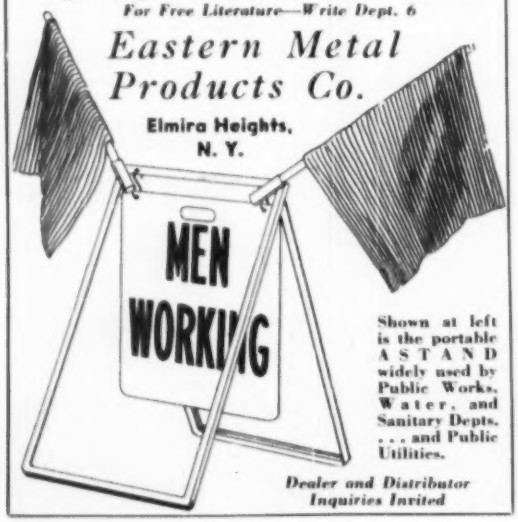
You can have control with these
TRAFFIC SIGNS

Complete line of highway signs—Posts and traffic devices—now serving Highway Depts., dependably 24 hours a day.

For Free Literature—Write Dept. 6

Eastern Metal Products Co.

Elmira Heights, N. Y.



Shown at left is the portable A S T A N D widely used by Public Works, Water, and Sanitary Depts. . . . and Public Utilities.

Dealer and Distributor Inquiries Invited

ANTHRAFILT

(Reg. U. S. Pat. Off.)

A Filter Medium For All Purposes

Has outstanding advantages over sand and quartz media:

1. Length of filter runs doubled
2. Only about one-half as much wash water required
3. Less coating, caking or balling with mud, lime, iron or manganese
4. Filters out of service less because of shorter wash cycle
5. Better removal of bacteria, micro-organic matter, taste and odor
6. Increased filter output with better quality effluent
7. Not just the top portion, but the entire bed, aids in filtering
8. Can be used in all types of filters using a filter medium
9. A perfect supporting medium for synthetic resins
10. An ideal filter medium for industrial acid and alkaline solutions
11. Decidedly advantageous for removal of fibrous material as found in swimming pool filters

Additional information, recommendations and quotations furnished upon request by

PALMER FILTER EQUIPMENT COMPANY
822 E. 8th St. [illegible] Erie, Pa.
Engineers and Sales Agents

REPRESENTING —

ANTHRACITE EQUIPMENT CORP.
Anthracite Institute Bldg., Wilkes-Barre, Pa.

Fire Chiefs Larry Boyle, of Big Bear Lake, and Albert Dell, of Big Bear City, Calif., with their new FWD fire engines, about to start a 2353-mile run.

Fire Trucks Get Shakedown Cruise

Working acquaintance with their new FWD fire engines manufactured by The Four Wheel Drive Auto Co., Clintonville, Wis. was gained when Fire Chiefs Larry Boyle and Albert Dell drove the engines home to Big Bear Lake and Big Bear City, Calif., a 2400-mile run. Chief Boyle's is a 750-gpm pumping engine and Chief Dell's new fire fighter is a 550-gpm job.

The Big Bear Lake region is located in the mountains some 50 miles northeast of San Bernardino, Calif., at an elevation of 6,800 feet.

Streets and roads in the area are steep, twisting mountain roads, some climbing to over 8,000 feet above sea level.

In the winter a total of 20 feet of snow falls. The chiefs were thinking about these mountainous roads covered with unplowed snow two feet deep, when they bought their new equipment.

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SPECIALISTS IN TABLETS
AND HISTORICAL MARKERS
CAST IN IMPERISHABLE BRONZE
FOR EVERY CIVIC NEED
Design Counsel — No Obligation

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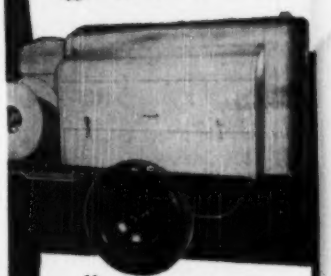
Bring Compressor Costs Down!



Use the Economical
SMITH
105-P
Compressor

The new Smith 105-P will handle the majority of your compressor jobs, for less. Powered with Chrysler's newest and largest Industrial engine—Ind. 15, six cylinders, 4" bore, 5" stroke, 377 cu. in., 3" crankshaft, 7 main bearings, sodium cooled valves and Stellite valve seats for extra heavy duty and long life. Compressor valves are stainless steel disc type with Manganese Bronze seats. Delivers 105 cubic feet per minute. Equipped with improved type pilot valve and simplified control for efficient, long life with minimum attention.

Write for literature and prices.

Also write for information on
The New SMITH
MODEL 70-P COMPRESSOR

SMITH
Air Compressors

Gordon Smith & Co. Bowling Green, Ky.
425 College Street

Here's a *Better way* to maintain Poll Lists

Lists are always up-to-date. That's why progressive election officials everywhere are using Flexoprint Panels for maintaining lists of registered voters!

Faster...Less Expensive...More Accurate

Typewritten die-cut cards are filed by street and number on district or precinct panels. Old cards are quickly removed, new ones inserted without changing the sequence of other cards on the panel. Instantly ready for photographing and fast, low-cost reproduction by photolith process.

Copywriting, typesetting, proofreading are "out" with the Flexoprint way! Cuts down errors, costs, time and office space required. Take Poll Lists off the "headache list" with Remington Rand Flexoprint!

"Now! The Modern Way"—illustrated folder containing complete description of the efficient Flexoprint System for Voters' Registration Lists will be sent to you on request. Just call your nearest Remington Rand Branch Office for a copy of KD 295, or write Management Controls Reference Library, Room 2340A, 315 Fourth Avenue, New York 10, N.Y.

Flexoprint Panel Trays used by DuPage County, Wheaton, Ill. Twenty Counties in Illinois alone have installed this economical, efficient system of voters' Registration Lists.

Copyright 1950, by Remington Rand Inc.

Remington Rand

THE **FIRST** NAME IN RECORD SYSTEMS

Toro Mfg. Corp. Expands Buys Coldwell-Philadelphia

The Toro Mfg. Corp., 3042 Snelling Ave., Minneapolis 6, Minn., recently announced an expansion program which includes the purchase of the Coldwell-Philadelphia Lawn Mower business. The present Coldwell - Philadelphia dealer organization will continue as part of Toro's nation-wide sales operation.

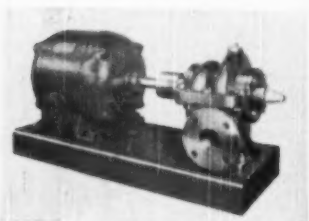
According to company spokesmen, Toro has purchased the Coldwell-Philadelphia name and a substantial portion of the company's assets, but did not buy the plant. Consequently, manufacturing of this line will be carried on in Milwaukee, Wis., by another Toro subsidiary, Whirlwind, Inc., under the supervision of Elmer Larsen, Whirlwind's vice president and general manager.

John O'Neill, former Brand Mfg. Co. sales manager, has been named sales manager of the new Coldwell-Philadelphia division of Toro, under the direction of R. W. Gibson, vice president in charge of Toro sales.

Since 1945 the company has gone from a volume of approximately $1,000,000 to $5,600,000 in 1949. It is estimated that this year's figures will be substantially greater.

Removable Rotor Assembly On New Pump

The new De Laval Type GS pump is designed for easy servicing. All parts except the bare pump casing are contained in the rotor assembly. When



maintenance is necessary, the top cover and end plate studs are removed, the assembly is lifted out, and a new assembly dropped in place.

Through the De Laval service and exchange plan, new rotors are available for immediate shipment from factory stock; full credit is given for all serviceable parts when the old rotor is returned.

The entire pump can be exchanged for a factory rebuilt and guaranteed pump, with full credit for serviceable parts.

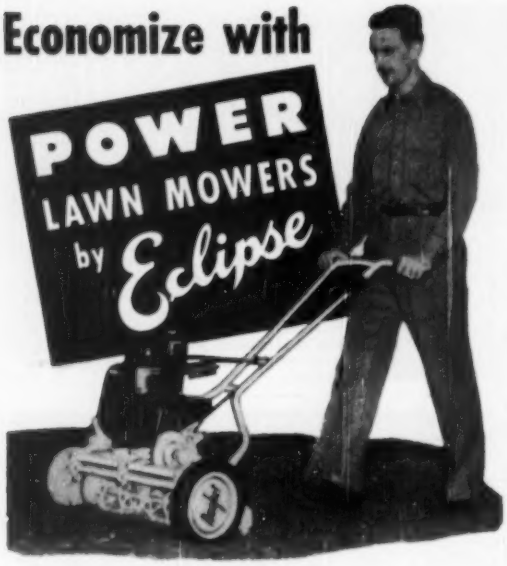
The new pump is built in three sizes for capacities to 450 gpm, heads to 230 feet. Further information may be obtained by writing to the Advertising Dept., De Laval Steam Turbine Co., Trenton 2, N. J.

10-Watt Mobile Radio Transmitter and Receiver

G. F. Metcalf, left, manager of the Commercial Equipment Div. of the Electronics Dept., General Electric Co., Syracuse, N. Y., and C. M. Heiden, engineer for the radio communications section, look over the new 10-watt mobile radio transmitter-receiver. The new unit is expected to be used widely by police and fire departments, utility and transit vehicles.

"Here's why we're saving money on shop costs, Jim--it's the simplicity of our AMERICAN Meters"
AMERICAN (Bronze Case) WATER METERS
NIAGARA (Galv. Iron Case) WATER METERS
Repair costs are reduced when you install Buffalo-made Meters in your system. Simply designed and constructed, AMERICAN Meters can be quickly taken apart and re-assembled. Fewer moving parts to require servicing — minimum replacement cost.
BUFFALO METER CO.
2902 MAIN STREET, BUFFALO 14, N. Y.

Economize with



Tax dollars go farther when invested in sturdy Eclipse lawn mowers. Years of dependable service cut operating and maintenance costs to a minimum. Be sure to check the outstanding features of Eclipse before placing your next order for lawn mowers.

Eclipse power mowers give you *all six features* considered essential for efficient, trouble-free mowing.

1. Power driven wheels.
2. Power driven reel.
3. Power driven sharpener.
4. Positive action clutch.
5. Finger-tip controls.
6. Dependable 4-cycle engine.

ROCKET (20") — The popular favorite because of its extreme operating economy and mowing perfection. Finger-tip control, heavy duty reel, oil tempered knife and natural grip all-steel handles are among distinctive features. Standard, Lo-Cut and Hi-Cut Models.

ROLLOWAY (25") — The Rolloway is preferred for larger mowing areas. Automotive-type differential and full-swivel caster wheel provide easy maneuverability in hard-to-reach places. There's plenty of power for slopes and terraces.

SPEEDWAY (32") — Fastest by far, this model mows a 32" swath, 200 yards long per minute by actual stop watch timing. Unmatched for time and money saving mowing of large areas. Sulky — optional extra.

PARKHOUND (21") — Unmatched for constant heavy-duty mowing, this model gives excellent service in small parks, cemeteries and large lawns.

Eclipse
THE WORLD'S BEST LAWN MOWER

ECLIPSE 1609 Railroad Street, Prophetstown, Illinois
Nationwide Warehouse Service

STEEL STRAPPING

IS INEXPENSIVE FOR ATTACHING STREET SIGNS

Hundreds of city and state highway departments vouch for the economy and worker convenience of A. J. Gerrard modern strapping methods.

STAINLESS STEEL— for permanent mounting.

GALVANIZED STEEL—for semi-permanent mounting (3 years).

Complete accessories in both metals.

For free demonstration or full information concerning the low-cost A. J. Gerrard method, write for name of nearest representative.

SS-2

A. J. Gerrard & Co.
1952 HAWTHORNE DRIVE • MELROSE PARK, ILL.
(Chicago Suburb)

THE ANSWER TO THE ENGINEER'S PRAYER

BREAKS CONCRETE FASTER

TAMPS BACKFILL BETTER AND FASTER FOR LESS

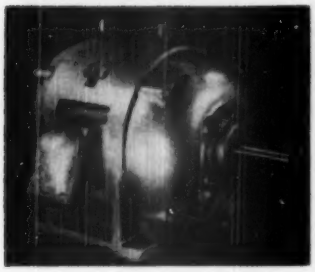
THE NEW, MORE POWERFUL

MIGHTY "B" MIDGET

Stronger construction, greater hitting force, increased mobility and easier operation are a few of the many improvements of this great new pavement breaker. Actual performance records under the toughest conditions show that this machine has a capacity of breaking 12" concrete. Operates on either 105 or 160 C. F. M. Compressor. Conventional Automotive rear end drive—equipped with 7.10 x 15 tires—manual or automatically operated.

Write for Complete Information to Dept. D

R. P. B. CORPORATION
2751 East 11th Street • Los Angeles 23, California



A. O. Smith Polyphase Motor

A complete line of polyphase utility motors of 1 to 125 hp is now being offered by the A. O. Smith Corp. This is in addition to the company's other products that include jet-pumps, gear, and vertical hollow-shaft motors for operating deep-well pumps, as well as general-purpose motors.

The new motors are of the horizontal type, and have had special attention given to appearance, insulation, bearings, ventilation, mounting, service, frames and end bells, terminal box, rotors and machining, the manufacturer reports.

The company has a new 16-page bulletin describing these motors in detail. For copies, write to A. O. Smith Corp., Motor Div., Los Angeles 22, Calif.

The Most Popular Transit for General Engineering Use

The Gurley No. 132 transit that served the U. S. armed forces throughout World War II still is the most popular transit for general use in the engineering field, according to officials of the W. & L. E. Gurley Co., 510 Fulton St., Troy, N. Y.

The transit uses standards and plate cast in one piece which lends itself to simplicity and rigidity of construction. The horizontal limb is 6¼ inches in diameter, and may be graduated to read by vernier to one minute, 30 seconds, or 20 seconds. The telescope is 10¼ inches long and gives an "erected" instead of an "inverted" image.

The Gurley No. 132 is only one of several transits and levels made by this company useful for surveying work customarily performed in municipalities. Typical of the others are the Hell Gate Precise transit No. 52FR; the Hell Gate Mountain transit No. 82R; standard mountain transit No. 112R; the Engineers Wye Level No. 375F; the Dumpy level No. 372F; as well as plane tables alidades, hand levels, compasses and a complete line of level and stadia rods.

Catalog No. 50 describes these engineering instruments in detail and may be obtained free by writing directly to the company.

Bring Your Existing STREET LIGHTING EQUIPMENT up to Date

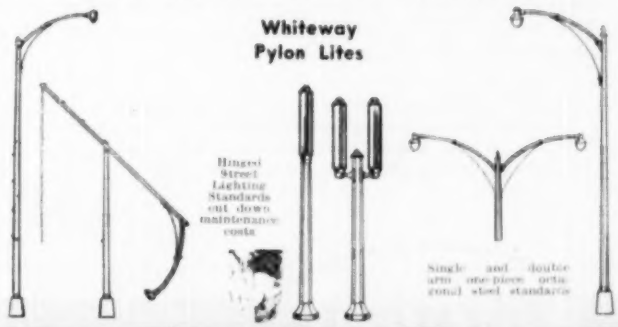
CHANGE OVER TO Revere ELECTRIC MFG. CO. CHICAGO 40, ILL.

FINISHING RINGS
and Sylvania Sealed Beam Series Lamps

Take advantage of this easy, inexpensive way to obtain higher initial and maintained illumination. Revere Rings fit most street lighting hoods and merely snap into place. No screws or other equipment needed for installation. Merely remove old luminaire and lamp and you're ready to go. *Write for complete details.*

OTHER NEW Revere CREATIONS

Whiteway Pylon Lites


Hinged Street Lighting Standards cut down maintenance costs
Single and double arm one-piece octagonal steel standards

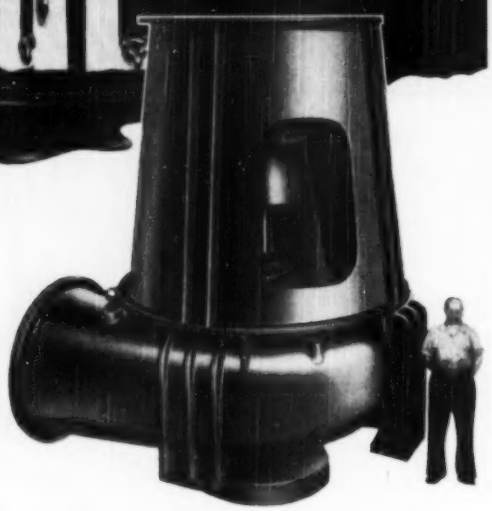
REVERE ELECTRIC MFG. CO.

6015 BROADWAY — *Indoor and Outdoor Lighting Equipment for Every Requirement* — CHICAGO 40, ILL.

SEWAGE

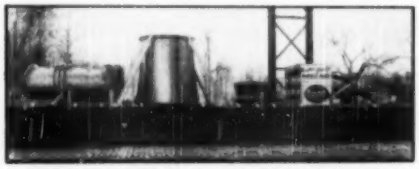
. . . And Storm Water, too. Both are being handled in trouble-free manner in scores of communities by the "Big Fellows" . . .

Morris
Storm Water and Sewage PUMPS



THE "BIG FELLOW"—a Morris 42" Vertical, Mixed Flow Pump. It's one of several which recently were installed for handling storm water and sewage for a large West Coast community. Has gigantic capacity—60 MGD. Handles raw sewage at 50,000 GPM against 25 Ft. TDH.

What kind of work do these "Big Fellows" do? In some communities, they handle enormous quantities of sewage and storm water. In others, they handle irrigation or drainage. In all instances, they are designed to perform with the utmost efficiency, safety, and dependability. They often take staggering punishment—particularly when conditions are unusual. But these "Big Fellows"—Morris Storm Water and Sewage Pumps—*have extra stamina.*



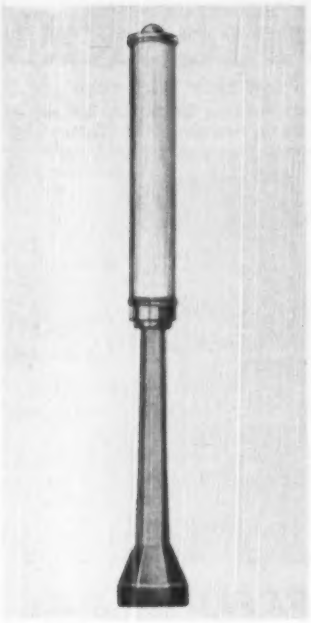
TAKES ALL OF A FLAT CAR to carry one of these Morris titans of service to its destination.

Of mixed-flow type, many operate with peak efficiency of 90%. Design can be entirely self-contained. Often one forced oiling system lubricates both pump and motor bearings. Motor weight can be supported by strong conical weldment—permitting the transmission of motor loads directly through weldment to heavy cast feet without casing strain. The need for a separate floor to support the motor is eliminated. Large manholes provide maximum accessibility—*impeller ring clearances easily checked.*

Morris Storm Water and Raw Sewage Pumps come in sizes ranging from 12" to 84" diameter discharge — ideally suited for capacities to 450 C.F.S. Other types of sewage pumps from 4" to 24". Horizontal and vertical types. For special use, Morris builds to suit your specifications. Consult a Morris Engineer without obligation.

MORRIS MACHINE WORKS
Baldwinsville, N. Y.
Sales Offices in Principal Cities

MORRIS *Centrifugal Pumps*



A six-lamp column light

Outdoor Column Fluorescents

Fluorescent column lights for parks, lots, and various areas, are illustrated and described in a folder available from the Steber Mfg. Co., Broadview, Ill.

There are six models; the square-base design carries four or eight 40-watt lamps. The round-base type includes two six-lamp units and a four-lamp, wall mounted unit. Fixtures are 59 inches and 9½ feet high.

At the top of each unit a wiring compartment is provided for easy installation of mushroom reflectors of Steberlites for supplemental lighting. The mushroom is an island-type light. A multiple socket cluster accommodates three 200-watt lamps.

New Electric Tamper For Street Maintenance

The new Tarwater electric tamper is recommended as a municipal field tool for tamping backfill on water, sewage and street maintenance jobs. Manufactured by the Tarwater Railway Supply Co., Investment Bldg., Redlands, Calif., the new, low-cost tamper weighs only 48 pounds.

According to company reports, one man using the Tarwater tamper can loosen, or pack, more material than six to eight men using ordinary hand methods. The entire unit is light-weight, shock-free; there are no gas fumes, no air hose, no battery requirements. For further information or a free demonstration, write to the company.

...Good water

No question about it; the most popular beverage of all is good drinking water—water that tastes right, smells right and looks right.

And there's no reason for water not to be "right." Where Welsbach Ozonating equipment is used, consumers know the pleasure of drinking water free from disagreeable chlorinous odors, offensive "medicinal" tastes and objectionable color.

The biggest Ozone installation in the world (serving the Belmont filtration area in Philadelphia) proves that through Welsbach cities can get the most efficient type of water treatment at a cost that's kind to the taxpayers.

• • •

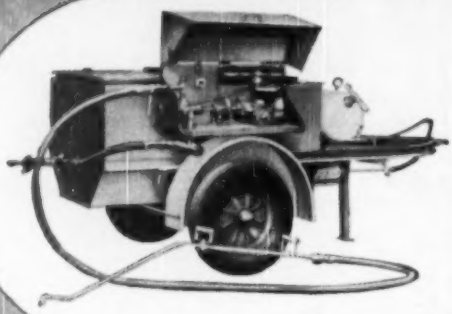
Everybody wants improved drinking water—and all communities can now have it. Water technicians, city officials and consulting engineers particularly will be interested in the Welsbach-Ozone story. They are invited to write about their water difficulties to The Welsbach Corporation. A frank, factual analysis will be made—at no cost or obligation. Also ask for, "Are Bathless Thursdays Really Necessary?", the picture story booklet about the Welsbach-Ozone process and equipment.

THE WELSBACH CORPORATION

Ozone Processes Division

1500 Walnut Street, Philadelphia 2, Pennsylvania

84-HD TAR KETTLE



... for that Low Cost road repair job

84-HD with Motor Spray Attachment.

Littleford Model 84-HD is not just an ordinary kettle, but a unit that has been tested and proven it can operate at a lower cost and give 100% efficiency on all road or highway repair jobs. This 84-HD Kettle will heat bituminous materials faster and utilize all the heat produced by the burner without faltering or wasting fuel.

What makes the 84-HD the outstanding unit for black-top maintenance work is the "Double Heat Circulation" and the "Screened Reservoir", two Littleford patented features. "Double Heat Circulation" System gets the maximum results out of the burner and the "Screened Reservoir" sees to it that there is a continuous flow of materials at all times. The 84-HD has no flues to burn out either—it's sturdy in construction and will outlast kettle after kettle.

Littleford, the foremost Kettle manufacturer, has made the 84-HD to give long lasting service. The 84-HD can be even more efficient by adding a Hand Spray or Motor Spray Attachment.

See Littleford for your next kettle, the 84-HD.

LB — BLACK TOP ROAD MAINTENANCE EQUIPMENT — SINCE 1900

LITTLEFORD

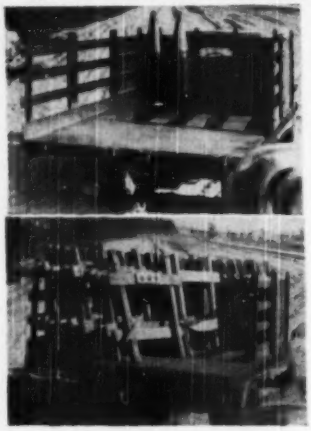
LITTLEFORD BROS., INC.
500 E. Pearl St., Cincinnati 2, Ohio

TRAFFICONES

for LOW COST — LONG LIFE

Traffic Barriers and Lane Channelling that can be set up in 1/10th the time and for 1/10th the money.

RAFFICONE



SAME JOB: TRAFFICONES VS. WOODEN BARRICADES

Enterprise Sales Corporation

231 W. Olive Avenue — Burbank, California

Sign up for SAFETY!

For safety on the streets, for effective traffic guidance, for speed and convenience of local deliveries—the progressive and economy-minded city marks its streets with GROTE Street Name Markers. They are long-haul economy because they are built and finished for many years of maintenance-free use—the sturdy surface never chips, cracks or crazes to let moisture penetrate and rust the metal.

Sign up for safety—and for longest service with GROTE Street Name Signs. Write for details.

the Grote MFG. CO., INC.

GROTE SQUARE BELLEVUE, KENTUCKY
OPPOSITE CINCINNATI

Wartime Substitute Joint Packing Makes Good

A wartime substitute that made the grade is the way the success story of Fibrex should be written, according to the Hydraulic Development Corp., 50 Church St., New York 7, N. Y.

Fibrex was developed during the war to take the place of braided jute as a joint packing material when jute was no longer available. Subsequent years have established Fibrex as a joint packing superior to jute, instead of merely a stop-gap substitute, according to the manufacturer. Improvements in Fibrex manufacture, and its clean record of complete freedom from bacteria growth, have relegated jute to a position in the background, he states.

New Manufacturing Technique

Fibrex is a paper packing with a special chemical treatment which makes it water repellant, keeps it sterile, and prevents it from disintegrating. It is constructed with a hard twisted core with a basket weave jacket, and packs into the joint exactly the same as braided jute. However, it is much easier to use because of its high compressibility.

New manufacturing techniques have strengthened the basket weave jacket. Due to greater yardage per pound, Fibrex does a better job than jute at approximately half the cost.

The manufacturer reports that Fibrex was designed for use with Hydro-Tite and other self-caulking compounds. It can, however, be used with lead, and also for Sani-Tite and other asphalt sewer joint compounds.

Hydraulic Development Corp. has a bulletin which describes Fibrex in detail and lists independent laboratory studies supporting the claims made for its effectiveness. A free working sample is available on request.

Two New Ready-Mixed Dampproofing Compounds

The Philip Carey Mfg. Co., Cincinnati 15 Ohio, now manufactures two new asphalt compounds, Carey Mastic and Carey Semi-Mastic, in addition to their dampproofing line. The new compounds are specifically designed to reduce the penetration of moisture and underground seepage through foundations and walls above and below grade.

Carey-Mastic is a heavily-fibrated asphalt compound for use in dampproofing foundation walls below grade, or as a plasterbond on interior surfaces of exterior masonry walls, above grade.

Carey Semi-Mastic is a semi-fibrated asphalt compound for application to porous masonry foundations and walls.

Neither product requires mixing, heating, or special tools; both provide a tough, elastic film capable of withstanding normal exposures and temperature changes. For A. I. A. specifications, write to the company at above address.

FROM NOW ON

during the War Emergency, you'll need

BETTER TOOLS

For Repair and Maintenance Work

COLEMAN can supply you with all kinds of Cleaning Tools for keeping pipes and sewers clean.

Your patronage is appreciated.

The Right Tool for Repair and Maintenance

The suggestion (left) sounds like very good sense. It happens to be the first page of the 1942 catalog of Allan J. Coleman, water and sewage works specialties, 120 W. Illinois St., Chicago. What it says is good advice now, not only for the reason given, but also because municipal departments are giving increasing attention to the tools of plant maintenance and repair. Those listed in the Coleman catalog include harpoon root cutters, hydraulic sewer flushers, self-propelling ferrets, and other tools for clearing sewers and house drains.

How CLEANLINESS is AUTOMATIC with BENNETT WASTE RECEPTACLES

● Everybody is automatically a member of your cleaning department by conveniently placing Bennett Bilt Waste Receptacles to invite their use. These waste receptacles are sanitary, economical and a major help to cleanliness and neatness. *Put them to work for you today.*

ONLY BENNETT WASTE RECEPTACLES HAVE ALL THESE FEATURES

- Non-rusting stainless steel feet eliminate rusting and rust marks
- Made of extra heavy-gauge Mayari R, Bethlehem's corrosion resistant steel
- All-welded construction
- Smooth exterior surface . . . nothing to catch and tear clothes
- Reinforced corners
- Strong springs keep doors closed providing greater sanitation and eliminating fire hazards
- Rounded corners for structural strength and pleasing appearance
- Baked enamel finish . . . white or green

These are a few of the many features that make Bennett Bilt Waste Receptacles a natural "buy." Quality and every consideration for hard usage are self-evident both inside and outside of these receptacles.

Write for fully-illustrated catalog TODAY.

Independently hinged doors
High tension springs keep doors closed
Burlap bags or galvanized liners are quickly removed

THE BENNETT MANUFACTURING CO., ALDEN, N. Y.

CUSTOM METAL CRAFTSMEN SINCE 1906

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FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured — *No Large Bell-holes to Dig*
Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each. Leadite tested and used for over 50 years ● Leadite joints improve with age.

Be sure it is Leadite and accept no imitations

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Aeroil WINTER CONSTRUCTION HEATERS

KEEP WINTER JOBS RUNNING AT SUMMER SPEED

- Concrete Heaters
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5 Wesley Street — South Hackensack, N. J.
Also Chicago, San Francisco, Dallas, Seattle, Pittsburgh, Dedham (Mass.), Jacksonville, Los Angeles.

PAY THEIR OWN WAY

Where snow removal is a major item, the greater efficiency of Maxim Snow Throwers shows up quickly in cost savings. These self-propelled rotary snow throwers clean down to the surface, whirl the snow away and leave no built-up banks. Thoroughly winter-proven by hundreds of users from Coast to Coast. Available in 7.2 H. P., 4.6 H. P. and 3 H. P. models.

SEND THIS COUPON FOR DETAILED INFORMATION

THE MAXIM SILENCER COMPANY
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Address .....

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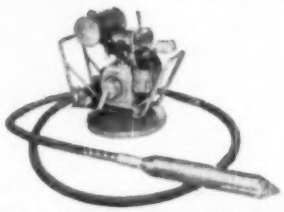


White Concrete Vibrators Have Many Noted Features

which have made them highly successful all over the world.

DEPENDABLE FLEXIBLE DRIVE. All sections are interchangeable, in multiples of 7' and 12' lengths. No special sections are required. Each casing has ball-bearing connector. Each alloy steel core has slip joint which does not separate in service. It prevents stretching and overheating. No limit to length of drive. **RELIABLE VIBRATING HEADS.** Also interchangeable and can be applied to any drive section. Heads can be opened for repairs. Rotor mounted on double row ball bearings. Alloy steel external ribs reduce wear. **STANDARD POWER UNITS.** Well-known gasoline engines and electric motors. Can be serviced almost everywhere.

CONCRETE GRINDERS. Speed reducing heads, to hold wheels, can be attached to any drive section.

Write for Circular

White Mfg. Co.
ELKHART — INDIANA

Demonstrate Road Resurfacing for Illinois Officials

Speedy and economical resurfacing of deteriorated gravel and oilmix roads with in-place materials was demonstrated recently for more than a hundred county and municipal officials near Harrisburg, Ill., by John Fabick Tractor Co., 3100 Gravois Ave., St. Louis, Mo., Caterpillar" dealer, who has a branch office at Marion, Ill., and by the Athey Products Corp., 5631 W. 65th St., Chicago 38, Ill.

With the assistance of the Southern Illinois Association of County Superintendents of Highways and the Illinois State Highway Department, Carbondale, Ill., the participating companies demonstrated the effectiveness of the Athey force-feed loader with the new portable breaker and the "Caterpillar" Diesel No. 12 motor grader, as a team for reconditioning coarse gravel and old black-top surface roads.

Gravel Road

A 400-foot section of a Harco, Ill., gravel road was scarified with the motor grader; resulting windrows were picked up by the force-feed loader and dropped through the portable breaker mounted on a trailer and pulled by the loader. Then the motor grader bladed the crushed material out to a smooth surface.

It took 67 minutes to run the two windrows through the breaker, thus making the production of the machine about 90 tons per hour. However, on a normal, longer run, where one piece of equipment would not have to wait until the other had finished working, production would be higher. Total time to scarify, windrow, crush, and level the 400-foot section was one hour and twenty-five minutes.

Oilmix Road

A 450-foot section of a 15-year-old oilmix road in Carrier Mills, Ill., was then reclaimed. The old black-top was scarified 20 feet wide to a depth of 6 inches with the motor grader; the windrowed material was picked up by the loader, run through the portable breaker, and the windrows leveled off with the grader.

The material was then "shot" with No. E-3 road oil, windrowed again by the No. 12, mixed thoroughly by the Athey loader, then bladed smoothly by the "Caterpillar" grader.

It took 70 minutes to pick up and crush the three windrows, giving the breaker a production figure of 180 tons per hour. The entire 450-foot section was scarified, windrowed, crushed, spread, oiled, windrowed, mixed and bladed into final shape in a total time of three hours and twenty-nine minutes.

A portable sound system installed in a station wagon was utilized during the demonstration to travel along the side of the road close to the machinery while representatives from the participating organizations gave descriptions of the operations being performed.

Caterpillar Sales Manager

H. J. Hunkele, Jr., has been appointed assistant manager of the sales engineering division of the Caterpillar Tractor Co., Peoria 8, Ill.

H. J. Hunkele, Jr.

Mr. Hunkele, a native of Newark, N. J., joined Caterpillar in 1947, after 11 years of experience in the diesel field. During the war he was chief engineer in the Maritime Service, and an Army officer.

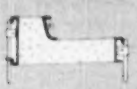
Make More Money with BLAW-KNOX STEEL CURB AND GUTTER FORMS

- Save expensive lumber and carpentry labor
- Complete each job faster
- Use the same forms for a wide variety of work
- Use the forms over and over—they're built to last longer
- Get a better quality of finished work

ONE SET of Blaw-Knox Steel Forms handles *every* curb or sidewalk job from simple straight work to serpentine or curved shapes, without the expensive carpentry that boosts man-hour costs and cuts profits. Easy to set and strip, they get the job finished faster and well within your estimate. Costly hand finishing is eliminated. Finished jobs have a perfection impossible to achieve with wood forms. Maintenance is practically non-existent.

Start your set of Blaw-Knox Steel Forms *now*—expand it any time for future requirements.

WRITE FOR BULLETIN 2259—28 pages illustrate form setups for every type of work, with complete instructions on how to use them.



CURB AND GUTTER FORMS. For combining concrete curb and gutter when curb is battered.

STRAIGHT CURB FORMS. For curb with both faces vertical. Auxiliary bracing system for lateral stability.

SIDEWALK FORMS. Furnished for any required width or thickness of sidewalk.

FLEXIBLE STEEL RADIUS FORMS. For curved work of variable radius. Back forms, gutter forms and battered curb face forms can be set to any desired radius.

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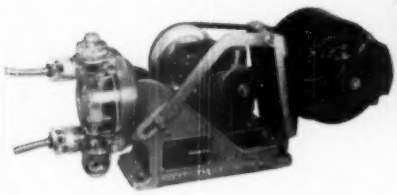

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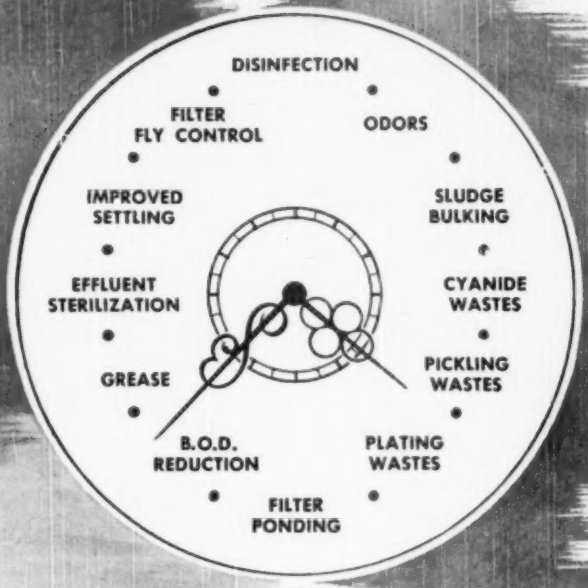

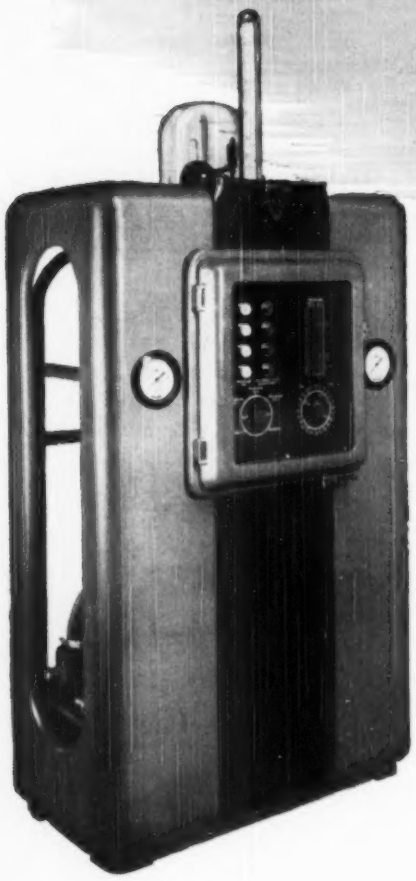

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